

Transmitted Via Electronic Mail

April 1, 2016

Ms. Alice Yeh Remedial Project Manager U.S. Environmental Protection Agency, Region II Emergency and Remedial Response Division 290 Broadway, 19th Floor New York, NY 10007-1866

Re: Combined Sewer Overflow/Stormwater Outfall Program Total TCDD Verification Memorandum

Dear Ms. Yeh:

Please find enclosed *CSO/SWO Total TCDD Verification Memorandum, Revision 1* dated April 2016 and prepared in accordance with Worksheet #36 of the Combined Sewer Overflow (CSO) / Stormwater Outfall (SWO) Quality Assurance Project Plan (QAPP). Revision 1 of this memorandum incorporates changes resulting from comments contained in the following documents:

- Phase I Data Usability Report Aug. 2014- EPA Comments USEPA provided initial comments on the DQUAR on August 6th, 2015.
- Tierra Responses to USEPA Comments on DQUAR_Final 09.18.15 Tierra submitted a Response to Comment (RTC) document on September 18, 2015, which provided responses to USEPA comments received on August 6th, 2015.
- CDM Smith Comments_CSO-SWO Phase I Tierra Response to Comments CDM Smith (EPA Contractor) submitted final comments to the DQUAR on November 12, 2015.

By submittal of this memorandum, Tierra is not subscribing to the usefulness of the estimated Total TCDD value for reasons previously discussed and presented to USEPA

If you have any questions regarding the attached report, please feel free to contact me at 732-246-5920.

Sincerely,

Brian Mikucki Project Scientist

On behalf of Occidental Chemical Corporation

(as successor to Diamond Shamrock Chemicals Company)

Enclosures

Cc: Enrique Castro, Tierra Solutions, Inc.

Diane Waldschmidt, Environmental Data Services

TOTAL TETRACHLORINATED DIBENZO-P-DIOXIN MEMORANDUM Revision 1 March 30, 2016

SITE: CSO/SWO Phase I

SAMPLE DELIVERY GROUPS: PR101, PR102, PR105, PR106, PR-107, PR109, PR110, PR125, PR126, PR127, PR134, PR135, PR137, PR138, PR140, PR141, PR142, PR145, PR146, PR147, PR149, PR150

A total of 53 samples were collected and submitted to Vista Analytical Laboratory for analysis in support of Phase I of Tierra's Combined Sewer Overflow/Stormwater Outfall Investigation (CSO/SWO). The samples were analyzed via USEPA method 1613B to determine the concentrations of 2,3,7,8-substituted polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDFs). The purpose of this reported is to summarize the findings upon completion of verification of total tetra chlorinated dibenzo-p-dioxin (TCDD) results reported for the CSO/SWO investigation.

The verification standard operating procedure "Verification of Total Tetra-Chlorinated Dibenzo-p- Dioxin Results", Rev. 2, 02/25/2016, was used to perform the total TCDD verification.

Note: Although results for other total dibenzo-p-dioxins (chlorinated levels penta, hexa and hepta) as well as dibenzo furans (chlorination levels tetra through hepta) reside in the existing database for these sample delivery groups, they have not been reviewed using the above mentioned procedure, nor have they been checked for potential transcription error.

No analyte concentration is guaranteed to be accurate even if all associated quality control is acceptable. While strict quality control conformance provides well-defined confidence in the reported results, any analytical result will always contain some uncertainty as documented in the laboratory control limits.

The user is cautioned that the validation effort is based on the materials provided by the laboratory. Software manipulation, resulting in misleading raw data printouts, cannot be routinely detected during verification; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

Appendix A contains a cross reference table of the sample identifiers, sample delivery group and sample collection method listing the samples for which total TCDD verification was performed. Appendix B contains revised verified Form Is. Appendix C contains TCDD verification worksheets and sample calculation.

Terri Solomon

Senior Technical Specialist

Date: March 8, 2016

Verification Procedure

This verification procedure was implemented as an evaluation of total TCDD results since these values were not evaluated during the isomer specific data validation task. This process is used to assess both the completeness and accuracy of the total TCDD data set.

Total TCDD results were verified for each sample having total TCDD results reported in Phase I of the CSO/SWO Investigation. In cases where multiple analyses were performed by the laboratory for 2,3,7,8-TCDD (example: multiple dilutions due to elevated target analyte concentrations or re-analysis based on failed quality control criteria), EDS confirmed that the total TCDD value reported in the data base, as well as hardcopy data, was based on the same analysis used to derive the 2,3,7,8-TCDD value reported.

Procedure Acceptance Criteria for Verification of Total Tetra Chlorinated Dibenzo Dioxin:

- Selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin are reported for each sample.
- Integrated areas are present for both the primary and confirmation ions for all peaks, and are 2.5 times above background noise in each sample SICP.
- Instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8 –TCDD labeled analog and sample preparation information are present for each sample.

Calculation Acceptance Criteria for Verification of Total Tetra Chlorinated Dibenzo Dioxin:

- The retention time of each non 2,3,7,8-substituted compound identified as present in the sample was within the window established by the window defining mixture, for the tetra chlorinated homologue.
- The integrated ion current of each non 2,3,7,8-substituted compound identified as present in the sample was at least 2.5 times background noise.
- All peaks meeting the requirements described above were included in the laboratory's calculation of Total TCDD.
- A minimum of one non 2,3,7,8-substituted compound identified was verified and the concentration recalculated.
- Recalculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample.

Results of Verification:

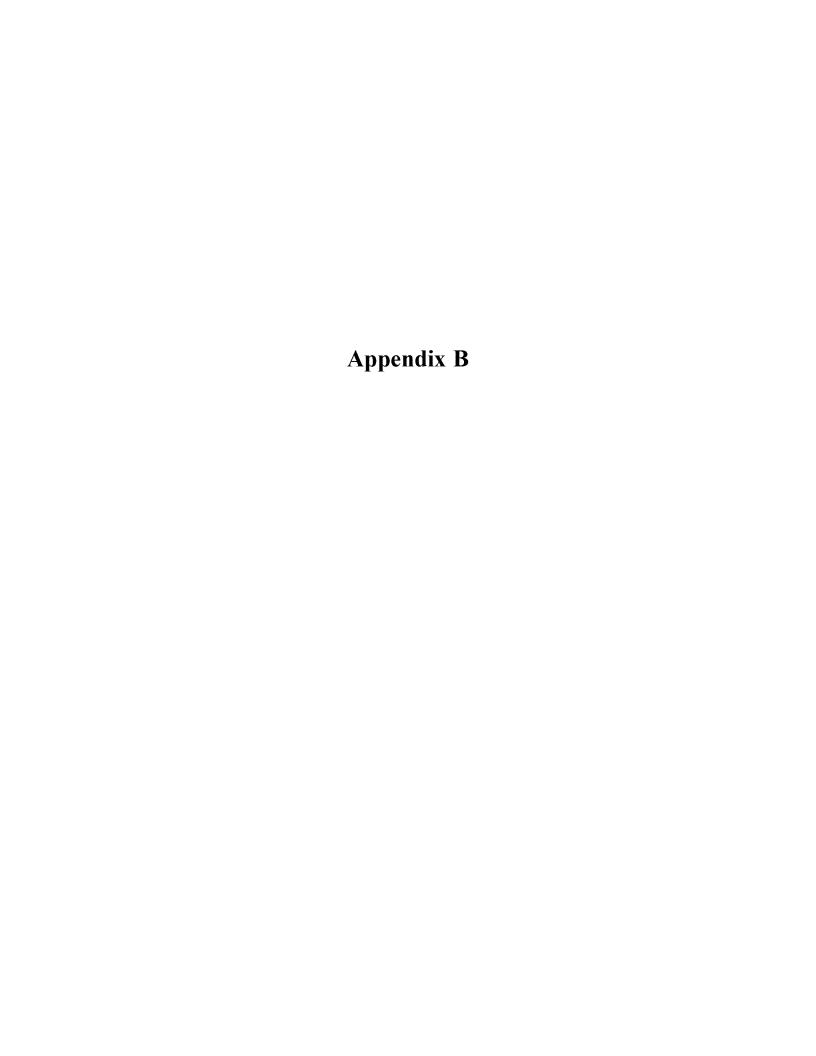
All 53 total TCDD results, reported during implementation of the Phase I CSO/SWO Investigation, were evaluated during this task. Of the 53 samples evaluated for this program, four results are recommended for editing based on the results of the total TCDD result verification task. The affected samples and associated results are provided in the Table 1 below. Total TCDD results for these samples have been corrected in both the laboratory hardcopy data reports and United States Environmental Protection Agency (USEPA) Region 2 Main Electronic Data Deliverable (MEDD)

Table 1

Sample Identification	Result Units	Existing Result Value	Data Qualifiers	New Result Value	Data Qualifiers
PR1LPDUP-01A	pg/g	11.5	EMPC	9.72	EMPC
PR1CSOCLYHP-02B	pg/g	14.0		12.8	
PR1HPDUP-02B	pg/g	13.8	EMPC	12.1	EMPC
PR1CSOCLYHP-01C	pg/g	19.4	EMPC	17.8	EMPC



Dioxin Samples	collected i	n the CS0	D/SWO Phase I Sampling Event
Sampling Method	Blank	SDG	Sample ID
	Rinse Blank	PR101	PR101CFRB
			PR101TLC
			PR101CFFB
			PR101WWFB
	Rinse Blank	PR102	PR101LDEB (Primary)
			PR101LPEB (Primary)
			PR101LDEB (Secondary)
			PR101LPEB (Secondary)
Whole Water		PR105	PR1CSOCLYWW-01A
			PR1WWDUP-01A
HSM Particulate		PR106	PR1CSOCLYHP-01A
			PR1HPDUP-01A
HSM Dissolved		PR107	PR1CSOCLYHD-01A
			PR1HDDUP-01A
LSM Particulate		PR109	PR1CSOCLYLP-01A
			PR1LPDUP-01A
LSM Dissolved		PR110	PR1CSOCLYLD-01A
			PR1LDDUP-01A
	Rinse Blank	PR125	PR103WWFB
			PR108CFFB
			PR107CFRB
	Rinse Blank	PR126	PR103LPEB (Primary)
			PR103LDEB (Primary)
			PR103LPEB (Secondary)
			PR103LDEB (Secondary)
	Rinse Blank		PR108CFRB
Whole Water		PR134	PR1CSOCLYWW-02B
			PR1WWDUP-02B
HSM Particulate		PR135	PR1CSOCLYHP-02B
			PR1HPDUP-02B
	Rinse Blank	PR137	PR109CFRB
			PR101HLLC
HSM Dissolved		PR138	PR1CSOCLYHD-02B
			PR1HDDUP-02B
LSM Particulate		PR140	PR1CSOCLYLP-02B
			PR1LPDUP-02B
LSM Dissolved		PR141	PR1CSOCLYLD-02B
			PR1LDDUP-02B
	Rinse Blank	PR142	PR110CFRB
			PR109CFFB
	part parte parte		PR104WWFB
Whole Water		PR145	PR1CSOCLYWW-01C
			PR1WWDUP-01C
HSM Particulate		PR146	PR1CSOCLYHP-01C
			PR1HPDUP-01C
HSM Dissolved		PR147	PR1CSOCLYHD-01C
			PR1HDDUP-01C
LSM Particulate		PR149	PR1CSOCLYLP-01C
			PR1LPDUP-01C
	Rinse Blank		PR105LPEB
LSM Dissolved		PR150	PR1CSOCLYLD-01C
			PR1LDDUP-01C
	Rinse Blank		PR105LDEB



Sample ID: PR	1101CFRB						EPA I	Method 161.	
Project: Lo Date Collected: 12	erra Solutions, Inc ower Passaic Rive 2-Nov-12 50	Study CSO/SWO	Sample Data Matrix: Aqueous Sample Size: 10.2 L		Laboratory Data Lab Sample: 34128-001 QC Batch No.: 4877 Date Analyzed DB-5: 28-Nov-12	Date Ex	ceived: tracted: nalyzed DB-225:	14-Nov-12 26-Nov-12 NA	
Analyte	Conc. (pg/L)	DL a	EMPC b	Qualifiers	Labeled Standard	%R	LCL-UCLd	Qualifiers	
2,3,7,8-TCDD	0.137			0-7	<u>IS</u> 13C-2,3,7,8-TCDD	86.3	25 - 164		
1,2,3,7,8-PeCDD	ND	0.134			13C-1,2,3,7,8-PeCDD	67.3	25 - 181		
1,2,3,4,7,8-HxCDD	ND	0.164			13C-1,2,3,4,7,8-HxCDD	69.8	32 - 141		
1,2,3,6,7,8-HxCDD	ND	0.199			13C-1,2,3,6,7,8-HxCDD	67.9	28 - 130		
1,2,3,7,8,9-HxCDD	ND	0.203			13C-1,2,3,7,8,9-HxCDD	66.1	32 - 141		
1,2,3,4,6,7,8-HpCDI	D ND	0.285			13C-1,2,3,4,6,7,8-HpCDD	59.4	23 - 140		
OCDD	0.539			G	13C-OCDD	51.8	17 - 157		
2,3,7,8-TCDF	ND	0.0760			13C-2,3,7,8-TCDF	92.4	24 - 169		
1,2,3,7,8-PeCDF	ND	0.0630			13C-1,2,3,7,8-PeCDF	63.4	24 - 185		
2,3,4,7,8-PeCDF	ND/	0.0630			13C-2,3,4,7,8-PeCDF	75.0	21 - 178		
1,2,3,4,7,8-HxCDF	_/ND	0.0997			13C-1,2,3,4,7,8-HxCDF	69.0	26 - 152		
1,2,3,6,7,8-HxCDF	ND	0.0956			13C-1,2,3,6,7,8-HxCDF	67.2	26 - 123		
2,3,4,6,7,8-HxCDF	/ ND	0.110			13C-2,3,4,6,7,8-HxCDF	69.9	28 - 136		
1,2,3,7,8,9-Hx@DF	ND	0.161			13C-1,2,3,7,8,9-HxCDF	63.7	29 - 147		
1,2,3,4,6,7,8-HpCDI	F 0.327			G	13C-1,2,3,4,6,7,8-HpCDF	59.5	28 - 143		
1,2,3,4,7,8,9-HpCDI	F ND	0.193			13C-1,2,3,4,7,8,9-HpCDF	59.5	26 - 138		
OCDF	1.06	****		——G—	13C-OCDF	53.5	17 - 157		
					CRS 37Cl-2,3,7,8-TCDD	88.7	35 - 197		
Totals	× 1				Toxic Equivalent Quotient (TEQ) I)ata e			
Total TCDD	0.137			В	TEQ (Min): 0.141				
Total PeCDD	ND	0.134							
Total HxCDD	ND	0.203	سهند		a. Sample specific estimated detection limit.				
Total HpCDD	ND	0.285			b. Estimated maximum possible concentration.		Marie Sanda S Marie Sanda Sa		
Total TCDF	ND	0.0760			c. Method detection limit.				
Total PeCDF	ND	0.0630			d. Lower control limit - upper control limit.				
Total HxCDF	ND	0.161			e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors (WHO)				
Total HpCDF	0.327		***************************************	ontonione . more minimum consumer					

Analyst: MAS

Approved By:

Calvin Tanaka 10-Dec-2012 12:20

Project 34128

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Sample ID: PR101TL	C						EPA!	Method 161
Client Data Tierra Solu Name: Tierra Solu Project: Lower Pass Date Collected: 12-Nov-12 Time Collected: 0815	saic River Study	/ CSO/SWO	VO Sample Size: 9,74 L		Laboratory Data Lab Sample: 34129-001 QC Batch No.: 4877 Date Analyzed DB-5: 28-Nov-12	Date l	Received: Extracted: Analyzed DB-225:	14-Nov-1: 26-Nov-1: NA
Analyte Conc.	(pg/L)	DL ^a	EMPC b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2.3.7.8-TCDD	ND	0:0578			IS 13C-2,3,7,8-TCDD	94.	1 25 - 164	
1,2,3,7,8-PeCDD	ND	0.101			13C-1,2,3,7,8-PeCDD	82.:	5 25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.145			13C-1,2,3,4,7,8-HxCDD	79.	9 32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.162			13C-1,2,3,6,7,8-HxCDD	82.	1 28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.178			13C-1,2,3,7,8,9-HxCDD	76.	7 32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	ر 0.247			13C-1,2,3,4,6,7,8-HpCDD	67.	9 23 - 140	
OCDD	0.315			G	13C-OCDD	61	3 17 - 157	
2,3,7.8-TCDF	ND	0.0669			13C-2,3,7,8-TCDF	97,	24 - 169	
1,2,3,7,8-PeCDF	ND /	0.0562			13C-1,2,3,7,8-PeCDF	73.0	0 24 - 185	
2,3,4,7,8-PeCDF	ND/	0.0535			13C-2,3,4,7,8-PeCDF	87.	0 21 - 178	
1,2,3,4,7,8-HxCDF	∕ND	0.0809			13C-1,2,3,4,7,8-HxCDF	78.	2 26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0783			13C-1,2,3,6,7,8-HxCDF	78.	0 26 - 123	
2,3,4,6,7,8-HxCDE	ND	0.0846			13C-2,3,4,6,7,8-HxCDF	82.	0 28 - 136	
1,2,3,7,8,9-HxedF	ND	0.124			13C-1,2,3,7,8,9-HxCDF	73.	7 29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.112			13C-1,2,3,4,6,7,8-HpCDF	68.	4 28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.129			13C-1,2,3,4,7,8,9-HpCDF	67.	1 26 - 138	
COP	ND	0.231		400 C 400 C C C C C C C C C C C C C C C	13C-OCDF	61.	6 17 - 157	
	***************************************				<u>CRS</u> 37CI-2,3,7,8-TCDD	93.0	35 - 197	
Totals				*	Toxic Equivalent Quotient (TEQ	Data		
Total TCDD	ND	0.0578			TEQ (Min): 0.0000945			
Total PeCDD		0,101	in premium in the principal contract constitution of					
Total HxCDD	ND	0.178			a. Sample specific estimated detection limit.			
Total HpCDD	ND	0.247			b. Estimated maximum possible concentration	0.		
Total TCDF	ND	0.0669			c. Method detection limit.			
Total PeCDF	-ND	0.0562			d. Lower control limit - upper control limit.			
Total HxCDF	ND	0.124			e. TEQ based on (2005) World Health Organ	ization Toxic	Equivalent Factors	(WHO)
TOTAL HPCDF	ND	0.129		a management of the rest was a				

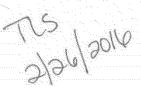
Analyst: MAS

Approved By: Will

William J. Luksemburg 04-Dec-2012 13:29

Project 34129

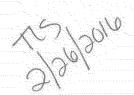
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Sample ID: PR10	1CFFB						EPA I	Method 1613	
	a Solutions, Inc. r Passaic River Stud ov-12	y CSO/SWO	O Sample Data Matrix: Aqueous Sample Size: 9.45 L		Lab Sample: 34130-001 QC Batch No.: 4877 Date Analyzed DB-5: 28-Nov-12	Date Re Date Ex Date Ar	TARREST CONTRACTOR	14-Nov-12 26-Nov-12 NA	
Analyte C	Conc. (pg/L)	DL a	EMPC b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Oualifiers	
2,3,7,8-TCDD	ND	0.0675			<u>IS</u> 13C-2,3,7,8-TCDD	94.7	25 - 164		
1,2,3,7,8-PeCDD	ND	0.114			13C-1,2,3,7,8-PeCDD	76.7	25 - 181		
1,2,3,4,7,8-HxCDD	ND	0.192			13C-1,2,3,4,7,8-HxCDD	69.0	32 - 141		
1,2,3,6,7,8-HxCDD	ND	0.210			13C-1,2,3,6,7,8-HxCDD	69,9	28 - 130		
1,2,3,7,8,9-HxCDD	ND	0.212			13C-1,2,3,7,8,9-HxCDD	66.8	32 - 141		
1,2,3,4,6,7,8-HpCDD	ND	0.288			13C-1,2,3,4,6,7,8-HpCDD	54.0	23 - 140		
OCDD	ND	0:325			13C-OCDD	45.8	17 - 157		
2,3,7,8-TCDF	ND	0.0742			13C-2,3,7,8-TCDF	96.8	24 - 169		
1,2,3,7,8-PeCDF	ND /	0.0646			13C-1,2,3,7,8-PeCDF	68.2	24 - 185		
2,3,4,7,8-PeCDF	ND	0.0626			13C-2,3,4,7,8-PeCDF	81.8	21 - 178		
1,2,3,4,7,8-HxCDF	/ND	0.108			13C-1,2,3,4,7,8-HxCDF	67.4	26 - 152		
1,2,3,6,7,8-HxCDF	/ ND	0.109			13C-1,2,3,6,7,8-HxCDF	65.8	26 - 123		
2,3,4,6,7,8-HxCDE	ND	0.120			13C-2,3,4,6,7,8-HxCDF	71.2	28 - 136		
1,2,3,7,8,9-HxCDF	ND	0.170			13C-1,2,3,7,8,9-HxCDF	64.6	29 - 147		
1,2,3,4,6,7,8-HpCDF	ND	0.141			13C-1,2,3,4,6,7,8-HpCDF	54,3	28 - 143		
1,2,3,4,7,8,9-HpCDF	ND	0.172			13C-1,2,3,4,7,8,9-HpCDF	52.8	26 - 138		
ÓCDF	ND		0.240		13C-OCDF	46.4	17 - 157		
· ·					CRS 37CI-2,3,7,8-TCDD	90.3	35 - 197	* *	
Totals					Toxic Equivalent Quotient (TEQ) I)ata e		a, chen and and	
Total TCDD	ND	0.0675			TEQ (Min): 0				
Total PeCDD	ND.	0.114					e i de la region No. L'accessione de la company		
Total HxCDD	ND	0.212			a. Sample specific estimated detection limit.				
Total HpCDD	ND	0.288-			b. Estimated maximum possible concentration.				
Total TCDF	ND	0.0742			c. Method detection limit.				
Total PeCDF	ND	0.0646			d. Lower control limit - upper control limit.				
Total HxCDP	ND	0.170			e. TEQ based on (2005) World Health Organiza	tion Toxic E	equivalent Factors	(WHO)	
Total HpCDF	ND	0:172							

Analyst: MAS Approved By: William J. Luksemburg 04-Dec-2012 13:29

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Sample ID:	PR101WV	MEB							EPA I	Method 1613
Client Data Name: Project: Date Collected: Time Collected:	Tierra Solu Lower Pass 13-Nov-12 0900	aic River Stud	y CSO/SWO	Sample Data Matrix: Aqueous Sample Size: 9.36 L		Laboratory Data Lab Sample: QC Batch No.: Date Analyzed DE	34131-001 4877	Date Re Date Ex Date An		14-Nov-12 26-Nov-12 NA
Analyte	Conc.	(pg/L)	DL a	EMPC b	Qualifiers	Labeled	Standard	%R	LCL-UCLd	Qualifiers
2,3,7,8-TCDD		ND	0:0613			IS 13C-2,3,7	7,8-TCDD	92.3	25 - 164	
1,2,3,7,8-PeCDD)	ND	0.112			13C-1,2,3	3,7,8-PeCDD	78.7	25 - 181	
1,2,3,4,7,8-HxCI	OC	ND	0.159			13C-1,2,3	3,4,7,8-HxCDD	77.8	32 - 141	
1,2,3,6,7,8-HxCI	OD	ND	0.193			13C-1,2,3	3,6,7,8-HxCDD	76.8	28 - 130	
1,2,3,7,8,9-HxCI	ac	ND	0.199			13C-1,2,3	3,7,8,9-HxCDD	75.3	32 - 141	
1,2,3,4,6,7,8-Hpt	CDD	ND	0.288			13C-1,2,3	3,4,6,7,8-HpCDD	65.3	23 - 140	
OCDD		ND	0.270			13C-OCI	DD	61.6	17 - 157	
2,3,7,8-TCDF		ND	0.0746			13C-2,3,3	7,8-TCDF	96.8	24 - 169	
1,2,3,7,8-PeCDF		ND /	0.0526			13C-1,2,3	3,7,8-PeCDF	72.4	24 - 185	
2,3,4,7,8-PeCDF		ND/	0.0522			13C-2,3,4	4,7,8-PeCDF	84.9	21 - 178	
1,2,3,4,7,8-HxCl)F	/ND	0.0779			13C-1,2,3	3,4,7,8-HxCDF	77.2	26 - 152	
1,2,3,6,7,8-HxCl	OF /	ND	0.0785			13C-1,2,3	3,6,7,8-HxCDF	74.7	26 - 123	
2,3,4,6,7,8-HxCI	DF/	ND	0.0898			13C-2,3,4	1,6,7,8-HxCDF	78.6	28 - 136	
1,2,3,7,8,9-Hxe1	SF .	ND	0.118			13C-1,2,3	3,7,8,9-HxCDF	73.8	29 - 147	
1,2,3,4,6,7,8-Hpt	CDF	ND	0.113			13C-1,2,3	3,4,6,7,8-HpCDF	65.5	28 - 143	
1,2,3,4,7,8,9-Hp	CDF	ND	0.138			13C-1,2,3	3,4,7,8,9-HpCDF	64.4	26 - 138	
бер г 		*-ND	0.242		ericonardo en estado	13C-OCI)F	62.9	17 - 157	
			************************************			CRS 37Cl-2,3,	7,8-TCDD	89.6	35 - 197	
Totals						Toxic Equiva	lent Quotient (TEQ) I)ata e		
Total TCDD		ND	0.0613			TEQ (Min):	0			
Total PeCDD		ND	0.112-		and the second second		and the first of the second of			
Total HxCDD		ND	0.199	-		a. Sample specific	estimated detection limit.			
Total HpCDD		ND /	0.288-			b. Estimated maximum possible concentration.				
Total TCDF		ND	0.0746			c. Method detection limit				
Total PeCDF	and the second second second	ND	0.0526			d. Lower control limit - upper control limit.				
Total HxCDP		ND	0.118			e. TEQ based on (2005) World Health Organiza	tion Toxic E	quivalent Factors	(WHO)
Total HpCDF		ND	0.138							

Analyst: MAS

Approved By: William J. Luksemburg 04-Dec-2012 13:30

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Sample ID: PR101LI	DEB(Primary)						EPA!	Method 161
Project: Lower Pas	ame: Tierra Solutions, Inc. Lower Passaic River Study CSO/SWC ate Collected: 19-Nov-12 me Collected: 1140		O Sample Data Matrix: Aqueous Sample Size: 9.56 L		Laboratory Data Lab Sample: 34145-003 QC Batch No.: 4909 Date Analyzed DB-5: 13-Dec-12		ceived: stracted: nalyzed DB-225;	21-Nov-1 10-Dec-12 NA
Analyte Conc	. (pg/L)	DL a	EMPC b	Qualifiers	Labeled Standard	%R	LCL-UCLd	Qualifiers
2,3,7,8-TCDD	ND	0.0806-			IS 13C-2,3,7,8-TCDD	78.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.191			13C-1,2,3,7,8-PeCDD	61.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.172		/	13C-1,2,3,4,7,8-HxCDD	61.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.198			13C-1,2,3,6,7,8-HxCDD	69.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.231			13C-1,2,3,7,8,9-HxCDD	61.1	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.398			13C-1,2,3,4,6,7,8-HpCDD	46.2	23 - 140	
OCDD	ND	0.391			13C-OCDD	41.5	17 - 157	
2,3,7,8-TCDF	ND	/ 0.0896			13C-2,3,7,8-TCDF	84.3	24 - 169	
,2,3,7,8-PeCDF	ND /	0.0755			13C-1,2,3,7,8-PeCDF	57.6	24 - 185	
2,3,4,7,8-PeCDF	ND_	0.0729			13C-2,3,4,7,8-PeCDF	70.6	21 - 178	
1,2,3,4,7,8-HxCDF	_MĎ	0.0983			13C-1,2,3,4,7,8-HxCDF	61.2	26 - 152	
1,2,3,6,7,8-HxCDF	ND ND	0.0950			13C-1,2,3,6,7,8-HxCDF	62.5	26 - 123	and the state of t
2,3,4,6,7,8-HxCDF	ND	0.0985			13C-2,3,4,6,7,8-HxCDF	68.0	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.159			13C-1,2,3,7,8,9-HxCDF	56.9	29 - 147	eragina (m. 1905). Na marania na manana ara
1,2,3,4,6,7,8-HpCDF	ND	0.149			13C-1,2,3,4,6,7,8-HpCDF	51.4	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.211			13C-1,2,3,4,7,8,9-HpCDF	45.2	26 - 138	
ocor	—ND	0.376			13C-OCDF	42.4	17 - 157	
\$ 15 miles					CRS 37C1-2,3,7,8-TCDD	91.8	35 - 197	
Totals					Toxic Equivalent Quotient (TEQ)	Data e		
Total TCDD	ND	0.0806			TEQ (Min): 0			
Fotal PeCDD	ND	0.191		and the second second				
Total HxCDD	ND	0.231	-		a. Sample specific estimated detection limit.			
Total HpCDD	ND	0,398-			b. Estimated maximum possible concentration	San Mariana Mariana Mariana	And the second second	
Total TCDF	ND	0.0896			c. Method detection limit.			
Total PeCDF	- ND	0.0755			d. Lower control limit - upper control limit.			
Total HxCDP	ND	0.159			e. TEQ based on (2005) World Health Organi	zation Toxic I	Equivalent Factors	(WHO)
Total HpCDP	ND	0.211						

Analyst: ANP Approved By: William J. Luksemburg 15-Dec-2012 07:48

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Sample ID:	PR101LD	EB(Second	ary)						EPA N	lethod 1613
Client Data Name: Project: Date Collected: Time Collected:	Tierra Solu Lower Pass 16-Nov-12 1236	tions, Inc. aic River Stud	y CSO/SWO	O Sample Data Matrix: Aqueo Sample Size: 8.97 L		Lab Sample: 34145-001 QC Batch No.: 4909 Date Analyzed DB-5: 12-Dec-12		Date Re Date Ex Date An		20-Nov-12 10-Dec-12 NA
Analyte	Conc.	(pg/L)	DL a	EMPC b	Qualifiers	Labeled Stan	dard	%R	LCL-UCLd	Qualifiers
2, 3,7,8-TCDD		-ND	0.137			IS 13C-2,3,7,8-TC	:DD	73.4	25 - 164	
1,2,3,7,8-PeCI	DD	ND	0.221			13C-1,2,3,7,8-1	PeCDD	66,1	25 - 181	
1,2,3,4,7,8-Hx	CDD	ND	0.214			13C-1,2,3,4,7,8	-HxCDD	61.9	32 - 141	
1,2,3,6,7,8-Hx	CDD	ND	0.243		garaga da Maria. Maria da Maria	13C-1,2,3,6,7,8	-HxCDD	64.8	28 - 130	
1,2,3,7,8,9-Hx	CDD	ND	0.276			13C-1,2,3,7,8,9	-HxCDD	59.1	32 - 141	
1,2,3,4,6,7,8-H	IpCDD	ND	0.459			13C-1,2,3,4,6,7	7,8-HpCDD	52.6	23 - 140	
OCDD		ND	9.370			13C-OCDD		45.6	17 - 157	
2,3,7,8-TCDF		ND	0.159			13C-2,3,7,8-TC	CDF	81.9	24 - 169	
1,2,3,7,8-PeCI)F	ND /	0.132			13C-1,2,3,7,8-I	PeCDF	59.6	24 - 185	
2,3,4,7,8-PeCI)F	ND	0.118			13C-2,3,4,7,8-I	PeCDF	74.8	21 - 178	
1,2,3,4,7,8-Hx	CDF	/ND	0.122			13C-1,2,3,4,7,8	-HxCDF	62.8	26 - 152	
1,2,3,6,7,8-Hx	CDF /	ND	0.125			13C-1,2,3,6,7,8	-HxCDF	60.8	26 - 123	
2,3,4,6,7,8-Hx	CDF/	ND	0.141			13C-2,3,4,6,7,8	-HxCDF	66.0	28 - 136	
1,2,3,7,8,9-Hx	edf	ND	0,203			13C-1,2,3,7,8,9	-HxCDF	58.8	29 - 147	
1,2,3,4,6,7,8-F	IpCDF	ND	0.141			13C-1,2,3,4,6,7	7,8-HpCDF	53.1	28 - 143	
1,2,2,4,7,8,9-F	IpCDF	ND	0.206			13C-1,2,3,4,7,8	3,9-HpCDF	49.1	26 - 138	
GCDF	ericeroscianica de la companya de l	ND	0:468	***************************************	and the second s	13C-OCDF		47.2	17 - 157	
		and the same of the same of				CRS 37C1-2,3,7,8-T0	CDD	100	35 - 197	
Totals		and the second				Toxic Equivalent Q	Quotient (TEQ) D	ata e	Andrew Control	est the second of
Total TCDD		ND	0.137			TEQ (Min):	0			
Total PcCDD		ND	0.221							
Total HxCDD		ND	0.276			a. Sample specific estimat	ted detection limit.			
Total HpCDD		ND	0,459-			b. Estimated maximum possible concentration.				
Total TCDF		ND	0.159			c. Method detection limit				
Total PeCDF		ND	0.132			d. Lower control limit - upper control limit.				
Total HxCDF		ND	0.203			e. TEQ based on (2005) V	Vorld Health Organizat	ion Toxic E	quivalent Factors.(WHO)
Total HpCDF	**************************************	ND	0.206	***************************************	-					

Analyst: ANP Approved By: William J. Luksemburg 15-Dec-2012 07:48

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Sample ID: PR	101LP	EB(Primary)					EPA P	Method 161:	
Project: Lo	wer Pass -Nov-12	tions, Inc. aic River Study CSO/SWC	Sample Data Matrix: Sample Size:	Solid Sample	Laboratory Data Lab Sample; 34145-004 QC Batch No.: 4906 Date Analyzed DB-5: 7-Dec-12	4906 Date Ext		21-Nov-1 6-Dec-12 NA	
Analyte	Conc.	(pg/sample) DL a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCLd	Qualifiers	
2,3,7,8-TCDD	—NĐ-				<u>IS</u> 13C-2,3,7,8-TCDD	89.4	25 - 164		
1,2,3,7,8-PeCDD	ND	2.17	Maria State Services		13C-1,2,3,7,8-PeCDD	113	25 - 181		
1,2,3,4,7,8-HxCDD	ND	1,99			13C-1,2,3,4,7,8-HxCDD	80.7	32 - 141		
1,2,3,6,7,8-HxCDD	ND	2.07	/		13C-1,2,3,6,7,8-HxCDD	94.7	28 - 130		
1,2,3,7,8,9-HxCDD	ND	2.42			13C-1,2,3,7,8,9-HxCDD	86.2	32 - 141		
1,2,3,4,6,7,8-HpCDE) ND	3.85			13C-1,2,3,4,6,7,8-HpCDD	93.8	23 - 140		
OCDD	ND	6.06/			13C-OCDD	112	17 - 157		
2,3,7,8-TCDF	ND	0.950			13C-2,3,7,8-TCDF	88.4	24 - 169		
1,2,3,7,8-PeCDF	ND	1.62			13C-1,2,3,7,8-PeCDF	98.5	24 - 185		
2,3,4,7,8-PeCDF	ND	1.50			13C-2,3,4,7,8-PeCDF	116	21 - 178		
1,2,3,4,7,8-HxCDF	ND	0.716			13C-1,2,3,4,7,8-HxCDF	82.4	26 - 152		
1,2,3,6,7,8-HxCDF	ŊĐ	0.691			13C-1,2,3,6,7,8-HxCDF	88.8	26 - 123		
2,3,4,6,7,8-HxCDF	/ND	0.783			13C-2,3,4,6,7,8-HxCDF	88.1	28 - 136		
1,2,3,7,8,9-HxCDF	ND	1.12			13C-1,2,3,7,8,9-HxCDF	84.0	29 - 147		
1,2,3,4,6,7,8-HpCDF	ND	1.19			13C-1,2,3,4,6,7,8-HpCDF	87.9	28 - 143		
1,2,3,4,7,8,9-HpCDF	ND	1.60			13C-1,2,3,4,7,8,9-HpCDF	97.1	26 - 138		
Ø €DF − − −	ND-	2.36			13C-OCDF	110	17 - 157		
					<u>CRS</u> 37Cl-2,3,7,8-TCDD	86.2	35 - 197		
Totals					Toxic Equivalent Quotient (TEQ)	Data e		Section 1	
Total TCDD	ND	2.05			TEQ (Min): 0				
Total/PeCDD	ND-	······································							
Total HxCDD	ND	2.16			a. Sample specific estimated detection limit.				
Total HpCDD	ND	3.85			b. Estimated maximum possible concentration			g Springer	
Total TCDF	ND	0.950			c: Method detection limit.				
Total PeCDF	ND-	1.55			d. Lower control limit - upper control limit.				
Total HxCDF	ND	0.813			e. TEQ based on (2005) World Health Organia	ation Toxic	Equivalent Factors.	(WHO)	
Total HpCDF	ND-	1.35			The results are reported in dry weight. The san	nple size is re	eported in wet weig	ht.	

Analyst: DMS Approved By: William J. Luksemburg 12-Dec-2012 11:48

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Sample ID: PR	101LP	EB(Secondar	y)					EPA!	Method 161:	
Project: Lo	wer Pass Nov-12	tions, Inc. saic River Study	CSO/SWO	Sample Data Matrix: Sample Size:	Solid Sample	Laboratory Data Lab Sample: 34145-002 QC Batch No.: 4907 Date Analyzed DB-5: 8-Dec-12	Date Ex	eceived: dracted: aslyzed DB-225:	20-Nov-12 6-Dec-12 NA	
Analyte	Conc.	(pg/sample)	DL a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers	
2,3,7,8-TCDD	-ND	7	2.51	-		IS 13C-2,3,7,8-TCDD	85.7	25 - 164		
1,2,3,7,8-PeCDD	ND		2.57			13C-1,2,3,7,8-PeCDD	92.4	25 - 181		
1,2,3,4,7,8-HxCDD	ND		3.03		/	13C-1,2,3,4,7,8-HxCDD	78.4	32 - 141		
1,2,3,6,7,8-HxCDD	ND		3.07			13C-1,2,3,6,7,8-HxCDD	92.9	28 - 130		
1,2,3,7,8,9-HxCDD	ND		3.84			13C-1,2,3,7,8,9-HxCDD	86.7	32 - 141		
1,2,3,4,6,7,8-HpCDE) ND		5.27			13C-1,2,3,4,6,7,8-HpCDD	88.9	23 - 140		
OCDD	ND		9.25			13C-OCDD	105	17 - 157		
2,3,7,8-TCDF	ND		1.39			13C-2,3,7,8-TCDF	83.7	24 - 169		
1,2,3,7,8-PeCDF	ND		1.83			13C-1,2,3,7,8-PeCDF	90.9	24 - 185		
2,3,4,7,8-PeCDF	ND		1.75			13C-2,3,4,7,8-PeCDF	97.6	21 - 178		
1,2,3,4,7,8-HxCDF	ND	/	1.01			13C-1,2,3,4,7,8-HxCDF	77,3	26 - 152		
1,2,3,6,7,8-HxCDF	ND		0.941	North Arrest Co.		13C-1,2,3,6,7,8-HxCDF	89.0	26 - 123		
2,3,4,6,7,8-HxCDF	< ND		1.08			13C-2,3,4,6,7,8-HxCDF	84,9	28 - 136		
1,2,3,7,8,9-HxCDF	ND		1.47			13C-1,2,3,7,8,9-HxCDF	80.5	29 - 147		
1,2,3,4,6,7;8-HpCDF	ND		1.61			13C-1,2,3,4,6,7,8-HpCDF	88.1	28 - 143		
1,2,3,4,7,8,9-HpCDF	ND.		2.35) ,			13C-1,2,3,4,7,8,9-HpCDF	94.1	26 - 138		
ócdi — — —	ND		3.78		Market and the Control of the Contro	13C-OCDF	103	17 - 157		
			The second			CRS 37Cl-2,3,7,8-TCDD	79.5	35 - 197		
Totals						Toxic Equivalent Quotient (TEQ) D	ata e			
Total TCDD	ND		2.50			TEQ (Min); 0				
Total PeCDD	NĐ		2.57	-	and the second s		Section 1	range (Sept. News) Sept. Sept. Sept.		
Total HxCDD	ND		3.31			a. Sample specific estimated detection limit.				
Total HpCDD	ND		5.26			b. Estimated maximum possible concentration.				
Total TCDF	ND		1.38			c. Method detection limit.				
Total PeCDF	ND-		1.79	The Bullion		d. Lower control limit - upper control limit.				
Total HxCDE	ND		1.11			c. TEQ based on (2005) World Health Organization Toxic Equivalent Factors (WHO)				
Total FipCDF ND 1-90						The results are reported in dry weight. The sample size is reported in wet weight.				

Analyst: DMS Approved By: William J. Luksemburg 12-Dec-2012 11:48

Project 34145

2/24/10

Sample ID: PR1C	SOCLYWW-01A				S. 1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	EPA Me	thod 1613B
Project: Low	ra Solutions, Inc. er Passiac River Study CSO/SWO un-2013 20:55	Matr	le Data rix: Aqueous ple Size: 7.23 L		Lab QC	oratory Data Sample: 1300420-01 Batch: B3G0015 c Analyzed: 08-Jul-13 21:15	Date Received: Date Extracted: 2 Column: ZB-5MS		44.20.40
Analyte C	Conc. (pg/L)	DL	EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.386			IS	13C-2,3,7,8-TCDD	84.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.510				13C-1,2,3,7,8-PeCDD	108	25 - 181	
1,2,3,4,7,8-HxCDD	0.859			/ G		13C-1,2,3,4,7,8-HxCDD	52.2	32 - 141	
1,2,3,6,7,8-HxCDD	2.37			G	1 1 1 1 1	13C-1,2,3,6,7,8-HxCDD	53.6	28 - 130	
1,2,3,7,8,9-HxCDD	1.56			G		13C-1,2,3,7,8,9-HxCDD	53.1	32 - 141	
1,2,3,4,6,7,8-HpCDD	62.1					13C-1,2,3,4,6,7,8-HpCDD	79.6	23 - 140	
OCDD	715					13C-OCDD	75.5	17 - 157	
2,3,7,8-TCDF	ND	and the same of th	0.173			13C-2,3,7,8-TCDF	79.7	24 - 169	April and
1,2,3,7,8-PeCDF	0.228			G		13C-1,2,3,7,8-PeCDF	86.9	24 - 185	
2,3,4,7,8-PeCDF	ND		0.302			13C-2,3,4,7,8-PeCDF	90.6	21 - 178	
1,2,3,4,7,8-HxCDF	1.68			G		13C-1,2,3,4,7,8-HxCDF	63.8	26 - 152	
1,2,3,6,7,8-HxCDF	ND		1.32			13C-1,2,3,6,7,8-HxCDF	64.6	26 - 123	
2,3,4,6,7,8-HxCDF	1.69			G		13C-2,3,4,6,7,8-HxCDF	65.9	28 - 136	
1,2,3,7,8,9-HxCDE	ND	0.356				13C-1,2,3,7,8,9-HxCDF	66.1	29 - 147	
1,2,3,4,6,7,8-HpCDF	18.0					13C-1,2,3,4,6,7,8-HpCDF	69.9	28 - 143	
1,2,3,4,7,8,9-HpCDF	1.56	The state of the state of the		G		13C-1,2,3,4,7,8,9-HpCDF	73.6	26 - 138	
OCDF	36.6					13C-OCDF	76.6	17 - 157	
					CRS	37CI-2,3,7,8-TCDD	116	35 - 197	
						Toxic Equivalent Quotient (TI	EQ) Data		ondocation the same of the same
						TEQMinWHO2005Dioxin	1.86		
TOTALS									
Total TCDD	0.240		0.923						
Total PeCDD		ACCUSION NAMED OF THE OWNER, OF	6:20	The second secon					
Total HxCDD	17.2		18.5						and Same
Total HpCDD	128								
Total TCDF	2.95	ALCOHOL STATE OF THE PARTY OF T	3.79						
Total PeCDF	7.39		7.82						
Total HxCDF	24.7		26.4						
erotal HpCDF		ONE RECEIPTANCE AND AND ADDRESS OF THE		-					

2/25/2014

DL - Sample specifc estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Project 1300420

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Sample ID: PR1WV	VDUP-01A							EPA Me	thod 1613E
Project: Lower	Solutions, Inc. Passiac River Study CSO 0-2013 0:00	Matr	Sample Data Matrix: Aqueous Sample Size: 9.50 L			boratory Data 5 Sample: 1300420-02 Batch: B3F0082 te Analyzed: 03-Jul-13 17:5	Date Received Date Extracted 0 Column: ZB-5MS	d: 27-Jun-2013 7:41	
Analyte Co	nc. (pg/L)	bL	EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2;3;7;8-TCDD	ND	0.0816			IS	13C-2,3,7,8-TCDD	61.9	25 - 164	
1,2,3,7,8-PeCDD	ND		0.211			13C-1,2,3,7,8-PeCDD	55.5	25 - 181	
1,2,3,4,7,8-HxCDD	0.514			/ G		13C-1,2,3,4,7,8-HxCDD	63.5	32 - 141	
1,2,3,6,7,8-HxCDD	1.41	Anna Caralla and Anna Caralla		G		13C-1,2,3,6,7,8-HxCDD	65.2	28 - 130	A STATE OF THE STATE OF
1,2,3,7,8,9-HxCDD	1.18			G		13C-1,2,3,7,8,9-HxCDD	62.3	32 - 141	
1,2,3,4,6,7,8-HpCDD	41.3					13C-1,2,3,4,6,7,8-HpCDD	48.5	23 - 140	
OCDD	429					13C-OCDD	39.7	17 - 157	
2,3,7,8-TCDF	ND		0.210			13C-2,3,7,8-TCDF	45.8	24 - 169	
1,2,3,7,8-PeCDF	ND		0.188			13C-1,2,3,7,8-PeCDF	58.5	24 - 185	
2,3,4,7,8-PeCDF	0.248			G		13C-2,3,4,7,8-PeCDF	59.7	21 - 178	
1,2,3,4,7,8-HxCDF	1.33			G		13C-1,2,3,4,7,8-HxCDF	62.5	26 - 152	
1,2,3,6,7,8-HxCDF	1.29		and and are	G		13C-1,2,3,6,7,8-HxCDF	67.8	26 - 123	
2,3,4,6,7,8-HxCDF	A39			G		13C-2,3,4,6,7,8-HxCDF	66.0	28 - 136	
1,2,3,7,8,9-HxCDE	ND	0.309				13C-1,2,3,7,8,9-HxCDF	58.4	29 - 147	
1,2,3,4,6,7,8-MpCDF	20.5					13C-1,2,3,4,6,7,8-HpCDF	51.7	28 - 143	
1,2,3,4,7,8,9-HpCDF	1.56			G		13C-1,2,3,4,7,8,9-HpCDF	47.6	26 - 138	
OCDF	43.3					13C-OCDF	39.2	17 - 157	
				enne en men fallmen pritte op men ford	CRS	37CI-2,3,7,8-TCDD	71.0	35 - 197	
	- C					Toxic Equivalent Quotient (T	EQ) Data		
						TEQMinWHO2005Dioxin	1.56		
TOTALS									
Total TCDD	0.357	and the second s		tana arabahan kacamatan banasa ba					
Fotal PcCDD	-221			The second secon					
Total HxCDD	12.1		and the second second second second second					national design of the second control of the	ing and the second
Total HpCDD	80.9								
Total TCDF	2.85	and the second district of the second distric		era i kiloni karanta da karanta Katama katama kata karan					
Fotal PeCDF	9.55				1888				
Fotal HxCDF	24.7 	Carlos San Salas Serve	Japan Jawa Jawa	seed Robert Stock and Stock	1000		eliani bili besili		alaga Sara Sar

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

2/25/16

LCL-UCL- Lower control limit - upper control limit.

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Project 1300420

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Sample ID: PR1CS	OCLYHP-01A					EPA Me	thod 1613
Project: Lowe	a Solutions, Inc. r Passiac River Study CSO/SWO n-2013 20:55	Sample Data Matrix: Solid Sample Size: 17.3 g % Solids: 29.5		■ 1 1 2 2 2 3 3 4 4 4 5 5 6 6 7 1 2 3 4 5 6 7 1 2 3 1 2 3 4 5 7 1 2 3 1 2		: 19-Jun-2013 6 Analyst: MAS	14:38
Analyte Co	one. (pg/g)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifier
2,3,7,8-TCDD	2.36	and the second s		IS 13C-2,3,7,8-TCDD	90.8	25 - 164	
1,2,3,7,8-PeCDD	4.34			13C-1,2,3,7,8-PeCDD	96.8	25 - 181	
1,2,3,4,7,8-HxCDD	5.96			13C-1,2,3,4,7,8-HxCDD	84.2	32 - 141	
1,2,3,6,7,8-HxCDD	21.4			13C-1,2,3,6,7,8-HxCDD	81.1	28 - 130	
1,2,3,7,8,9-HxCDD	15.3			13C-1,2,3,7,8,9-HxCDD	83.2	32 - 141	
1,2,3,4,6,7,8-HpCDD	672			13C-1,2,3,4,6,7,8-HpCDI	95.4	23 - 140	
OCDD	9480		D	13C-OCDD	112	17 - 157	D
2,3,7,8-TCDF	4.76			13C-2,3,7,8-TCDF	92.6	24 - 169	
1,2,3,7,8-PeCDF	3.76			13C-1,2,3,7,8-PeCDF	105	24 - 185	
2,3,4,7,8-PeCDF	4.76			13C-2,3,4,7,8-PeCDF	101	21 - 178	
1,2,3,4,7,8-HxCDF	20.9			13C-1,2,3,4,7,8-HxCDF	84,4	26 - 152	
1,2,3,6,7,8-HxCDF	15.4			13C-1,2,3,6,7,8-HxCDF	77.0	26 - 123	
2,3,4,6,7,8-HxCDF	_19.0			13C-2,3,4,6,7,8-HxCDF	80.0	28 - 136	
1,2,3,7,8,9-HxCDF	1.53		G	13C-1,2,3,7,8,9-HxCDF	83.2	29 - 147	
1,2,3,4,6,7,8-ffpCDF	245			13C-1,2,3,4,6,7,8-HpCDF	82.9	28 - 143	
1,23,4,7,8,9-HpCDF	16.4			13C-1,2,3,4,7,8,9-HpCDF	93.7	26 - 138	
OCDF	486		Section Commence of the Commen	13C-OCDF	98.3	17 - 157	
and the second				CRS 37Cl-2,3,7,8-TCDD	96.8	35 - 197	
				Toxic Equivalent Quotic	nt (TEQ) Data		
				TEQMinWHO2005Dioxii	ı 31.0		
TOTALS							
Total TCDD	14.5	18.0					
Potal PeCDD	The state of the s						
Total HxCDD	172				er i de le legación de la companya de la companya La companya de la co		
Total HpCDD	1430	· · · · · · · · · · · · · · · · · · ·					
Total TCDF	78.4	80.8			all and the state of the state		200
Total PeCDF	147						
Total HxCDF	314						
FontTipCDF	529 imated detection limit						

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight. Min-The

TEQ is calculated using zero for the concentration of congeners that are not detected.

Project 1300419

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Sample ID: PR1HPI	DUP-01A						EPA Me	thod 16131
Project: Lower	Solutions, Inc. Passiac River Study CSO/SWO 1-2013 0:00	Sample Data Matrix: Solid Sample Size: 16.9 g % Solids: 30.1		Laboratory Data Lab Sample: QC Batch: Date Analyzed:	1300419-02 B3F0052 25-Jun-13 21: 28-Jun-13 17:	Date Received: Date Extracted: 8 Column: ZB-5MS 4 Column: DB-225	19-Jun-2013 Analyst: MAS Analyst: MAS	14:38
	nc. (pg/g)	DL EMPC	Qualifiers	Labeled Sta		%R	LCL-UCL	Qualifiers
2,3,7,8-FCDD 1,2,3,7,8-PcCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD 0CDD 2,3,7,8-FCDF 1,2,3,7,8-PcCDF 1,2,3,4,7,8-PcCDF 1,2,3,4,7,8-HxCDF 1,2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HyCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,6,7,8-HpCDF	9.15 4.78 5.72 21.2 15.3 621 8960 4.90 4.11 5.26 31.5 18.2 20.9 1.89 271 18.7		D G	13C-1,2,3,7 13C-1,2,3,4 13C-0CDD 13C-2,3,7,8 13C-1,2,3,7 13C-1,2,3,4 13C-1,2,3,4 13C-1,2,3,7 13C-1,2,3,7 13C-1,2,3,4 13C-1,2,3,4	8-PeCDD 7,8-HxCDD 7,8-HxCDD 8,9-HxCDD 6,7,8-HpCDD -TCDF 8-PeCDF 8-PeCDF 7,8-HxCDF 7,8-HxCDF 7,8-HxCDF 7,8-HxCDF 6,7,8-HyCDF 6,7,8-HpCDF 7,8-HyCDF 7,8-HyCDF 7,8-HyCDF 7,8-HyCDF	97.2 104 79.5 80.5 81.3 93.6 102 97.6 106 107 82.7 75.3 77.8 80.8 81.7 92.4 90.7	25 - 164 25 - 181 32 - 141 28 - 130 32 - 141 23 - 140 17 - 157 24 - 169 24 - 169 24 - 185 21 - 178 26 - 152 26 - 123 28 - 136 29 - 147 28 - 143 26 - 138 17 - 157	
				CRS 37CI-2,3,7,8	I-TCDD valent Quotient (T	100	35 - 197	
				agaaraa raasaa ka k	IO2005Dioxin	39.6		
TOTALS								
Total TCDD Total PeCDD Total HxCDD Total HpCDD Total TCDF Total PeCDF Total PeCDF	25.5 57.2 172 1330 87.2 163 338	25.7 89.4 164						

DL - Sample specife estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight. Min-The

TEQ is calculated using zero for the concentration of congeners that are not detected.

Project 1300419

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Sample ID: PRICS	SOCLYHD-01A						EPA Me	thod 1613)
Project: Low	a Solutions, Inc. er Passiac River Study CSO/SWO un-2013 20:55	Sample Data Matrix: Aqueous Sample Size: 9.91 L		Lab QC	oratory Data Sample: 1300424-01 Batch: B3F0088 e Analyzed: 03-Jul-13 19:3	Date Receive Date Extract O Column: ZB-51	and the second of the second o	
Analyte C	one. (pg/L)	DL EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-1CDD	ND	0.0670	~	IS	13C-2,3,7,8-TCDD	86.9	25 - 164	
1,2,3,7,8-PeCDD	0.182		<u>_</u> 6	1.5	13C-1,2,3,7,8-PeCDD	61.4	25 - 181	
1,2,3,4,7,8-HxCDD	0.347		√ G		13C-1,2,3,4,7,8-HxCDD	67.6	32 - 141	
1,2,3,6,7,8-HxCDD	1.19		G		13C-1,2,3,6,7,8-HxCDD	68.8	28 - 130	
1,2,3,7,8,9-HxCDD	0.894		G		13C-1,2,3,7,8,9-HxCDD	65.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	32.6			1	13C-1,2,3,4,6,7,8-HpCDD	51.7	23 - 140	
OCDD	365				13C-OCDD	42.4	17 - 157	
2,3,7,8-TCDF	0.148		G		13C-2,3,7,8-TCDF	77.7	24 - 169	
1,2,3,7,8-PeCDF	ND	0.101			13C-1,2,3,7,8-PeCDF	66.6	24 - 185	
2,3,4,7,8-PeCDF	0.266		G	10000	13C-2,3,4,7,8-PeCDF	67.9	21 - 178	
1,2,3,4,7,8-HxCDF	0.982		G		13C-1,2,3,4,7,8-HxCDF	67.1	26 - 152	
1,2,3,6,7,8-HxCDF	0.962		G		13C-1,2,3,6,7,8-HxCDF	73.9	26 - 123	
2,3,4,6,7,8-HxCDF	1.04		G		13C-2,3,4,6,7,8-HxCDF	69.0	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.365			13C-1,2,3,7,8,9-HxCDF	62.5	29 - 147	
1,2,3,4,6,7,8-HpCDF	16.6				13C-1,2,3,4,6,7,8-HpCDF	54.8	28 - 143	
1.2.3.4.7.8.9-HpCDF	ND	1.29	and the second second		13C-1,2,3,4,7,8,9-HpCDF	48.9	26 - 138	
бedr —	······································		***************************************		13C-OCDF	41.9	17 - 157	
			energy er fan de filefall stjate	CRS	37CI-2,3,7,8-TCDD	92.4	35 - 197	
					Toxic Equivalent Quotient (T	EQ) Data	***************************************	
					TEQMinWHO2005Dioxin	1.43		
TOTALS						***************************************		
Total TCDD	ND	0.0670						
Total PeCDD				1				
Total HxCDD	8.69	8.70						
Total HpCDD	62.4			1				
Total TCDF	0.992	1.11						
Total PcCDF	5.69	5.79						
Total HxCDF	18.6							and Market Market (1997). Names and Albert (1997).
Total HpCDF				1	그리는 바쁜 바로 내려 되었습니다.			

EMPC - Estimated maximum possible concentration

Project 1300424

LCL-UCL- Lower control limit - upper control limit

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

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Sample ID: PR1HDI	DUP-01A						EPA Me	thod 1613I
Project: Lower	Solutions, Inc. Passiac River Study CSO/9 -2013 0:00	Sample Data Matrix: Aqueou SWO Sample Size: 9.88 L		Lab QC	boratory Data Sample: 1300424-02 Batch: B3F0088 e Analyzed: 03-Jul-13 18:4	Date Received Date Extracted 0 Column: ZB-5M:	l: 28-Jun-2013	
Analyte Cor	nc. (pg/L)	DL EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2 ,2,7,8-TCDD	ND ***	0:0740		IS	13C-2,3,7,8-TCDD	63.9	25 - 164	
1,2,3,7,8-PeCDD	ND	0.185			13C-1,2,3,7,8-PeCDD	50.5	25 - 181	
1,2,3,4,7,8-HxCDD	0.411		/ G		13C-1,2,3,4,7,8-HxCDD	57.9	32 - 141	
1,2,3,6,7,8-HxCDD	4.63				13C-1,2,3,6,7,8-HxCDD	59.4	28 - 130	
1,2,3,7,8,9-HxCDD	2.49		G		13C-1,2,3,7,8,9-HxCDD	56.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	116				13C-1,2,3,4,6,7,8-HpCDD	48.4	23 - 140	
OCDD	720				13C-OCDD	40.4	17 - 157	
2,3,7,8-TCDF	0.169		G		13C-2,3,7,8-TCDF	57.9	24 - 169	
1,2,3,7,8-PeCDF	0.139		G		13C-1,2,3,7,8-PeCDF	53.9	24 - 185	
2,3,4,7,8-PeCDF	0.248		G		13C-2,3,4,7,8-PeCDF	56.2	21 - 178	
1,2,3,4,7,8-HxCDF	0.912		G		13C-1,2,3,4,7,8-HxCDF	56.5	26 - 152	
1,2,3,6,7,8-HxCDF	1.04		G		13C-1,2,3,6,7,8-HxCDF	63.7	26 - 123	
2,3,4,6,7,8-HxCDF	Ø:922		G		13C-2,3,4,6,7,8-HxCDF	60.3	28 - 136	
1,2,3,7,8,9-HxCDE	ND	0.302			13C-1,2,3,7,8,9-HxCDF	53.6	29 - 147	
1,2,3,4,6,7,8-HpCDF	17.6				13C-1,2,3,4,6,7,8-HpCDF	47.3	28 - 143	
1,2,3,4,7,8,9-HpCDF	1.45		G		13C-1,2,3,4,7,8,9-HpCDF	44.2	26 - 138	
OCDF	39.8				13C-OCDF	38.7	17 - 157	
				CRS	37CI-2,3,7,8-TCDD	90.9	35 - 197	Control of the part of
					Toxic Equivalent Quotient (T	EQ) Data		
					TEQMinWHO2005Dioxin	2.71		
TOTALS								
Total TCDD	2.05							
Fotal PcCDD	311							
Total HxCDD	25.1		And the second s					
Total HpCDD	193							
Total TCDF	0.668	0.770						
Total PeCDF	7.29	7.50						
Total HxCDF	18.7	18.9				general and a few fields. A distribution of general		
Fotal FfpCDF	36.9	and the control of th	Phone in the second particular and the second secon	March St.		电磁电阻 化多点混合物 化二氯化二甲基二甲基	化聚型化 化二氯化二甲基二氯化甲基	

Total TipCDF 36.9
DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Project 1300424

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Sample ID: PR16	CSOCLYLP-01A						EPA Me	thod 1613B
Project: Lc	erra Solutions, Inc. ower Passiac River Study CSO/SV -Jun-2013 10:20	/O Sample Data Matrix: Sample Size:	Filter 0.371 g	Lab QC	oratory Data Sample: 1300432-01 Batch: B3G0017 e Analyzed: 09-Jul-13 18:3		ived: 19-Jun-2013 cted: 03-Jul-2013 5MS Analyst: FEB	
Analyte	Conc. (pg/Sample w	DL EM	PC Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	William (IV)	1.20		IS	13C-2,3,7,8-TCDD	98.6	25 - 164	
1,2,3,7,8-PeCDD	6.50		G		13C-1,2,3,7,8-PeCDD	98.2	25 - 181	
1,2,3,4,7,8-HxCDD	12.0		G		13C-1,2,3,4,7,8-HxCDD	88.6	32 - 141	
1,2,3,6,7,8-HxCDD	43.9				13C-1,2,3,6,7,8-HxCDD	87.2	28 - 130	
1,2,3,7,8,9-HxCDD	25.4				13C-1,2,3,7,8,9-HxCDD	87.3	32 - 141	
1,2,3,4,6,7,8-HpCDD) 1940				13C-1,2,3,4,6,7,8-HpCDD	90.3	23 - 140	
OCDD	15700				13C-OCDD	87.4	17 - 157	
2,3,7,8-TCDF	5.49				13C-2,3,7,8-TCDF	93.8	24 - 169	
1,2,3,7,8-PeCDF	4.09				13C-1,2,3,7,8-PeCDF	99.3	24 - 185	
2,3,4,7,8-PeCDF	14.2		G	1000	13C-2,3,4,7,8-PeCDF	97.8	21 - 178	
1,2,3,4,7,8-HxCDF	23.4				13C-1,2,3,4,7,8-HxCDF	97.3	26 - 152	
1,2,3,6,7,8-HxCDF	24.4				13C-1,2,3,6,7,8-HxCDF	98.4	26 - 123	
2,3,4,6,7,8-HxCDF	282		어느님들 보고 하는 보다		13C-2,3,4,6,7,8-HxCDF	96.7	28 - 136	
1,2,3,7,8,9-HxCDE	4.84		G		13C-1,2,3,7,8,9-HxCDF	97.5	29 - 147	
1,2,3,4,6,7,8-H5CDF	396				13C-1,2,3,4,6,7,8-HpCDF	97.1	28 - 143	
1,2,3,4/7,8,9-HpCDF	28.1				13C-1,2,3,4,7,8,9-HpCDF	92.2	26 - 138	
ocor-	791)				13C-OCDF	86.2	17 - 157	
				CRS	37CI-2,3,7,8-TCDD	103	35 - 197	
TOTALS								
Total TCDD	18.6							
Total PeCDD	240							
Total HxCDD	(1) 14 354 (1) 15 15 15 15 15 15							
Total HpCDD	3860	and the second s		1 . ~				
Total TCDF	71.5	92		13.5				
Total PeCDF	177	1	And the second of the second o					
Total HxCDF	496	8.5 · S. D						
Total HoCDF						ed comment		

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

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	PRILPDUP-01	

EPA Method 1613B

Client Data

Name:

Tierra Solutions, Inc.

Project:

Lower Passiac River Study CSO/SWO

14-Jun-2013 17:25 Date Collected:

Sample Data

Matrix: Filter 0.612 g Sample Size:

Laboratory Data Lab Sample:

1300432-02

Date Received: 19-Jun-2013 9:10

QC Batch: Date Analyzed:

B3G0017

Date Extracted: 03-Jul-2013 10:33

09-Jul-13 21:01 Column: ZB-5MS Analyst: FEB

Analyte	Conc. (pg/Sample w	DL	EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD				G	IS	13C-2,3,7,8-TCDD	100	25 - 164	
1,2,3,7,8-PeCDD	4.37			<u>_</u> G		13C-1,2,3,7,8-PeCDD	101	25 - 181	
1,2,3,4,7,8-HxCDD	6.63			G		13C-1,2,3,4,7,8-HxCDD	94.9	32 - 141	
1,2,3,6,7,8-HxCDD	22.8			G		13C-1,2,3,6,7,8-HxCDD	93.1	28 - 130	
1,2,3,7,8,9-HxCDD	15.5			G		13C-1,2,3,7,8,9-HxCDD	93.3	32 - 141	
1,2,3,4,6,7,8-HpCDD	845					13C-1,2,3,4,6,7,8-HpCDD	92.1	23 - 140	
OCDD	8560					13C-OCDD	86.3	17 - 157	
2,3,7,8-TCDF	2.83			G		13C-2,3,7,8-TCDF	95.7	24 - 169	
1,2,3,7,8-PeCDF	3.14			6		13C-1,2,3,7,8-PeCDF	100	24 - 185	
2,3,4,7,8-PeCDF	8.37			G		13C-2,3,4,7,8-PeCDF	100	21 - 178	
1,2,3,4,7,8-HxCDF	13.3			G		13C-1,2,3,4,7,8-HxCDF	101	26 - 152	
1,2,3,6,7,8-HxCDF	14.0			G		13C-1,2,3,6,7,8-HxCDF	103	26 - 123	
2,3,4,6,7,8-HxCDF	15.8			G		13C-2,3,4,6,7,8-HxCDF	100	28 - 136	
1,2,3,7,8,9-HxCDF	4.55			G		13C-1,2,3,7,8,9-HxCDF	99.3	29 - 147	
1,2,3,4,6,7,8-HpCDF	215					13C-1,2,3,4,6,7,8-HpCDF	97.5	28 - 143	
1,2,3,4,7,8,9-HpCDF	16.2			G		13C-1,2,3,4,7,8,9-HpCDF	91.8	26 - 138	
OCDF	$4.22 e^{-i(x_1 + x_2 + x_3 + x_4 +$					13C-OCDF	85.9	17 - 157	
					CRS	37Cl-2,3,7,8-TCDD	103	35 - 197	And the second second
TOTALS									
Total TCDD	10.5		-H-5 9,7G	فاللواوك) ا					
Total-PeCDD			87.9						
Total HxCDD	172								
Total HpCDD	1730	and the second second	and the second s						
Total TCDF	51.0	Marie Carlos Car	54.5						
Total PeCDF	99.6								
Total HxCDF	270								
Fotal HpCDF	en e							The state of the state of	

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Project: Lowe	a Solutions, Inc. er Passiac River Study un-2013 10:20	CSO/SWO Sample			Lab QC	ooratory Data Sample: 1300427-01 Batch: B3G0011 e Analyzed: 04-Jul-13 17:5:	Date Receive Date Extracte 3 Column: ZB-5M	d: 19-Jun-2013 d: 02-Jul-2013	The second secon
Analyte C	onc. (pg/L)	DL.	EMPC	Qualifiers	 	Labeled Standard	%R	LCL-UCL	Qualifier
2,3,7,8-TCDD	ND	9.70431			1S	13C-2,3,7,8-TCDD	66,2	25 - 164	
1,2,3,7,8-PeCDD	ND.	0.0938				13C-1,2,3,7,8-PeCDD	58.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.110				13C-1,2,3,4,7,8-HxCDD	47.0	32 - 141	
1,2,3,6,7,8-HxCDD	0.304			G		13C-1,2,3,6,7,8-HxCDD	51.0	28 - 130	
1,2,3,7,8,9-HxCDD	0.254			G		13C-1,2,3,7,8,9-HxCDD	46.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	6.33					13C-1,2,3,4,6,7,8-HpCDD	40.3	23 - 140	
OCDD	41.7					13C-OCDD	35.0	17 - 157	
2,3,7,8-TCDF	ND	0.0665	April 1985 A. P. S.			13C-2,3,7,8-TCDF	67,5	24 - 169	
1,2,3,7,8-PeCDF	ND		0.0380			13C-1,2,3,7,8-PeCDF	58.8	24 - 185	
2,3,4,7,8-PeCDF	0.0854			G		13C-2,3,4,7,8-PeCDF	61.3	21 - 178	
1,2,3,4,7,8-HxCDF	0.314			G		13C-1,2,3,4,7,8-HxCDF	47.0	26 - 152	
1,2,3,6,7,8-HxCDF	0.361			G		13C-1,2,3,6,7,8-HxCDF	49.1	26 - 123	
2,3,4,6,7,8-HxCDF	J8:277			G		13C-2,3,4,6,7,8-HxCDF	48.6	28 - 136	
1.2,3,7,8,9-HxCDE	ND	0.203				13C-1,2,3,7,8,9-HxCDF	46.3	29 - 147	
1,2,3,4,6,7,8-H6CDF	3.40					13C-1,2,3,4,6,7,8-HpCDF	42.8	28 - 143	
1.2.3.4/7.8.9-HpCDF	ND		0.370			13C-1,2,3,4,7,8,9-HpCDF	39.6	26 - 138	
ocor	6:05					13C-OCDF	34.8	17 - 157	
		and the second second of the second		the same and profit to the same of the	CRS	37CI-2,3,7,8-TCDD	95.7	35 - 197	A Committee of the Committee of the
						Toxic Equivalent Quotient (TI	EQ) Data		
						TEQMinWHO2005Dioxin	0.288		
TOTALS									
Total TCDD	ND	0.0431			1				
Total PeCDD	0.158		0.276	The second second					
Total HxCDD	2.17		2.31						
Total HpCDD	11.6								
Total TCDF	0.102							er i kirker i dirik 1952. Li i Ne Dela sekeleri di	
Total PeCDF	1.19		1.28						
Total HxCDF	4.52				1			e North Color	
Total HpCDF	6.70		7.07	egychologicy (de felefa) maken jerigen production (de felefa) (de felefa) (de felefa) (de felefa) (de felefa)					

2/26/16

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Project 1300427

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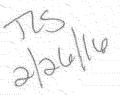
Sample ID: PR1L1	DDUP-01A			EPA Method 16131
Project: Low	ra Solutions, Inc. er Passiac River Study CSO/SWO un-2013 17:25	Sample Data Matrix: Aqueous Sample Size: 9.71 L		Laboratory Data Lab Sample: 1300427-02 Date Received: 19-Jun-2013 9:10 QC Batch: B3G0011 Date Extracted: 02-Jul-2013 7:44 Date Analyzed: 01-Jan-80 00:00 Column: ZB-5MS Analyst: ANP 04-Jul-13 17:03 Column: ZB-5MS Analyst: ANP
Analyte C	Conc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard %R LCL-UCL Qualifiers
2,3,7,8-TCDD	ND	0.0521		IS 13C-2,3,7,8-TCDD 70.6 25 - 164
1,2,3,7.8-PeCDD	ND	0.0875		13C-1,2,3,7,8-PeCDD 60.4 25 - 181
1,2,3,4,7,8-HxCDD	ND	0.138		13C-1,2,3,4,7,8-HxCDD 50.1 32 - 141
1,2,3,6,7,8-HxCDD	0.313		G	13C-1,2,3,6,7,8-HxCDD 54.6 28 - 130
1,2,3,7,8,9-HxCDD	ND	0.168		13C-1,2,3,7,8,9-HxCDD 51.4 32 - 141
1,2,3,4,6,7,8-HpCDD	6.41			13C-1,2,3,4,6,7,8-HpCDD 44.2 23 - 140
OCDD	44.0			13C-OCDD 39.4 17 - 157
2,3,7,8-TCDF	ND	_0.0679		13C-2,3,7,8-TCDF 70.9 24 - 169
1,2,3,7,8-PeCDF	ND	0.0605		13C-1,2,3,7,8-PeCDF 62.9 24 - 185
2,3,4,7,8-PeCDF	ND	0.0558		13C-2,3,4,7,8-PeCDF 65.2 21 - 178
1,2,3,4,7,8-HxCDF	0.364		G	13C-1,2,3,4,7,8-HxCDF 50.0 26 - 152
1,2,3,6,7,8-HxCDF	0.373		G	13C-1,2,3,6,7,8-HxCDF 52.4 26 - 123
2,3,4,6,7,8-HxCDF	J0321		G	13C-2,3,4,6,7,8-HxCDF 51.4 28 - 136
1,2,3,7,8,9-HxCDE	ND	0.122		13C-1,2,3,7,8,9-HxCDF 50.7 29 - 147
1,2,3,4,6,7,8-HDCDF	3.20			13C-1.2.3.4.6,7.8-HpCDF 46.2 28 - 143
1.2.3.4.7.8.9-HpCDF	0.363		G	13C-1,2,3,4,7,8,9-HpCDF 44,5 26 - 138
о́cbr	5.00			13C-OCDF 38.9 17 - 157
and the state of t	and the state of the same and the same of	and the second of the second of the second of the second		CRS 37CI-2,3,7.8-TCDD 99.2 35 - 197
······································				Toxic Equivalent Quotient (TEQ) Data
				TEQMinWHO2005Dioxin 0.252
TOTALS				
Total TCDD	ND	0.0531 15 5	(36/VP)	
Total PcCDD				
Total HxCDD	2.00			
Total HpCDD	11.9			
Total TCDF	ND			
Total PeCDF	1.35			
Total HxCDE	4.64			
Total HpCDI	6,97		*******	

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.



Sample ID: PR	107CFRB			EPA Method 1613
Project:	Fierra Solutions, Inc. Lower Passiac River Study CSO/SWO 07-Aug-2013 9:00	Sample Data Matrix: Aqueous Sample Size: 10.0 L		Laboratory Data Lab Sample: 1300551-03 Date Received: 08-Aug-2013 8:51 QC Batch: B3H0058 Date Extracted: 22-Aug-2013 9:57 Date Analyzed: 23-Aug-13 19:47 Column: ZB-5MS Analyst: MAS
Analyte	Conc. (pg/L)	DL EMPG	Qualifiers	Labeled Standard %R LCL-UCL Qualifiers
2,3,7,8-TCDD	(1000000000000000000000000000000000000	0.103	and the second s	IS 13C-2,3,7,8-TCDD 93.8 25 - 164
1,2,3,7,8-PeCDD	ND Service (See Section 1) and the service of the s	0.0459		13C-1,2,3,7,8-PeCDD 107 25 - 181
1,2,3,4,7,8-HxCDE		0.0861		13C-1,2,3,4,7,8-HxCDD 83.7 32 - 141
1,2,3,6,7,8-HxCDE		0.0895	tanang arawa ta Marija Sas	13C-1,2,3,6,7,8-HxCDD 85.5 28 - 130
1,2,3,7,8,9-HxCDE	and the control of th	0.0872		13C-1,2,3,7,8,9-HxCDD 93.6 32 - 141
1,2,3,4,6,7,8-HpCI	and the control of th	0.437	ere i Sereniane e	13C-1,2,3,4,6,7,8-HpCDD 105 23 - 140
OCDD	0.502		\mathbf{G}	13C-OCDD 98.4 17 - 157
2,3,7,8-TCDF	ND	0.0647		13C-2,3,7,8-TCDF 94.4 24 - 169
1,2,3,7,8-PeCDF	ND /	0.0719		13C-1,2,3,7,8-PeCDF 106 24 - 185
2,3,4,7,8-PeCDF	ND	0.114		13C-2,3,4,7,8-PeCDF 109 21 - 178
1,2,3,4,7,8-HxCDF	l ND	0.230		13C-1,2,3,4,7,8-HxCDF 84.6 26 - 152
1,2,3,6,7,8-HxCDF	ND	0.0689		13C-1,2,3,6,7,8-HxCDF 80.4 26 - 123
2,3,4,6,7,8-HxCDF	ND.	0.0849		13C-2,3,4,6,7,8-HxCDF 82.2 28 - 136
1,2,3,7,8,9-HxCDF	ND	0.0968		13C-1,2,3,7,8,9-HxCDF 94.1 29 - 147
1,2,3,4,6,7,8-HpCI	OP 0.513		G	13C-1,2,3,4,6,7,8-HpCDF 90.1 28 - 143
1,2,3,4,7,8,9-HpCL	OF ND	0.109		13C-1,2,3,4,7,8,9-HpCDF 97.5 26 - 138
OCDE	1.53		G	13C-OCDF 92.4 17 - 157
And the second contract of the second contrac		$\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $		CRS 37CI-2,3,7,8-TCDD 102 35 - 197
			¥-	Toxic Equivalent Quotient (TEQ) Data
				TEQMinWHO2005Dioxin 0.00574
TOTALS				
Total TCDD	ND	0.168		
-Total PeCDD	1000000000000000000000000000000000000	0.112		
Total HxCDD		0.148	Section of the second	
Total HpCDD	ND	0.437		
Total TCDF	ND	-0.141	NO STREET, SHOW A	
Total PeCDF	ND	0.114		
Total HxCDF	ND	0.259	eriterite settlint meteor	decire as estimates of classes and community facilities as a more property and community and com-
TotalHpCDF	0.513			
27.7.42.00.04.00	cife estimated detection limit and maximum possible concentration			LCL-UCL- Lower control limit - upper control limit Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: PR108	CFFB							EPA Mei	hod 1613I
Project: Lowe	a Solutions, Inc. er Passiac River Study CSO/SWO ug-2013 13:45	Sample Data Matrix: Aqueous Sample Size: 10.1 L		Lab QC	boratory Data Sample: Batch: e Analyzed:	1300551-02 B3H0058 23-Aug-13 18:59	Date Received: Date Extracted: Column: ZB-5MS	22-Aug-2013	9:57
Analyte C	onc. (pg/L)	DL EMPC	Qualifiers		Labeled Stand	lard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	and the second s	0.103		IS	13C-2,3,7,8-T	CDD	83.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0437			13C-1,2,3,7,8-	PeCDD	86.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.111			13C-1,2,3,4,7,	8-HxCDD	70.2	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.122			13C-1,2,3,6,7,	8-HxCDD	67.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.128			13C-1,2,3,7,8,	9-HxCDD	66,2	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.393			13C-1,2,3,4,6,	7,8-HpCDD	71.2	23 - 140	
OCDD	ND	0.466			13C-OCDD		64.3	17 - 157	
2,3,7,8-TCDF	ND	0.0424			13C-2,3,7,8-T	CDF	88.8	24 - 169	
1,2,3,7,8-PeCDF	ND	~ 0.0508			13C-1,2,3,7,8-	PeCDF	90.8	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0492			13C-2,3,4,7,8-	PeCDF	95.1	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.0523			13C-1,2,3,4,7,	8-HxCDF	64.9	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0570			13C-1,2,3,6,7,	8-HxCDF	63.1	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.0314			13C-2,3,4,6,7,	8-HxCDF	68.9	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0422			13C-1,2,3,7,8,		68.0	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.125			13C-1,2,3,4,6,	and the first the first state of the second st	61.5	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.0890			13C-1,2,3,4,7,	and the state of t	67.4	26 - 138	
OCDF /	ND	0.161			13C-OCDF		61.2	17 - 157	
			manufacture of the contract of	CRS	37CI-2,3,7,8-T	CDD	102	35 - 197	
					Toxic Equival	ent Quotient (TEQ)) Data		
					TEQMinWHO	2005Dioxin	0.00		
TOTALS									
Total TCDD	ND	0.103							
Total PeCDD	and the second s	is the construction of th							
Total HxCDD	ND	0.290				and the second of the second of	and a section and the section of	garage and a second control of	
Total HpCDD	ND	0.393							
Total TCDF	ND	0.0424			Y AD	U/V			
Total PeCDF	ND	0.0529							
Total HxCDF	ND	0.0615	Baran San San San San San San San San San S	landa ara				asan markatan ba	
Total HpCDF	ND								
DL - Sample specife est EMPC - Estimated max	timated detection limit					nit - upper control limit sing zero for the concent	tration of congeners that	are not detected.	

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Sample ID: PR103V	WWFB						EPA Mei	hod 1613I
Project: Lowe	a Solutions, Inc. r Passiac River Study CSO/SWO ug-2013 10:00	Sample Data Matrix: Aqueous Sample Size: 10.1 L		Lab QC	boratory Data Sample: 1300551-01 Batch: B3H0058 e Analyzed: 23-Aug-13 18:1	Date Received: Date Extracted: 0 Column: ZB-5M!	22-Aug-2013	9:57
Analyte Co	onc. (pg/L)	DL EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD		0.104	unicania de la constanta de la	IS	13C-2,3,7,8-TCDD	84.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0996			13C-1,2,3,7,8-PeCDD	95.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.0783			13C-1,2,3,4,7,8-HxCDD	75.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.0896			13C-1,2,3,6,7,8-HxCDD	72.6	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.0930			13C-1,2,3,7,8,9-HxCDD	73.2	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.135			13C-1,2,3,4,6,7,8-HpCDD	82.6	23 - 140	
OCDD	ND	0.993			13C-OCDD	69.8	17 - 157	
2,3,7,8-TCDF	ND	0,0479			13C-2,3,7,8-TCDF	87.3	24 - 169	
1,2,3,7,8-PeCDF	ND	0.0533			13C-1,2,3,7,8-PeCDF	103	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0565			13C-2,3,4,7,8-PeCDF	102	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.0713			13C-1,2,3,4,7,8-HxCDF	69.1	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0740			13C-1,2,3,6,7,8-HxCDF	66.1	26 - 123	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
2,3,4,6,7,8-HxCDF	ND_	0.0519			13C-2,3,4,6,7,8-HxCDF	74.1	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0738			13C-1,2,3,7,8,9-HxCDF	72.2	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.109			13C-1,2,3,4,6,7,8-HpCDF	69.3	28 - 143	
1,2,3,4,7,8,94HpCDF	ND	0.0542			13C-1,2,3,4,7,8,9-HpCDF	78.8	26 - 138	
OCDF	ND	0.308			13C-OCDF	68.6	17 - 157	
				CRS	37CI-2,3,7,8-TCDD	105	35 - 197	
					Toxic Equivalent Quotient (TE	Q) Data		
					TEQMinWHO2005Dioxin	0.00		
TOTALS								
Total TCDD	ND	0.241				ang integral, Angeles and Angeles in Angeles	. Nagaran da sana sa	
Total PeCDD	ND	_0.0996						
Total HxCDD	ND	0.134	Account of the Control of the Contro	1		sants facilities and a color		
Total HpCDD	ND	0.239			V 176/V			
Total TCDF	ND	-0.0479	racinal recognización			Na Ar Cheen andreas		
Total PeCDF	ND	0.0925						
Total HxCDF	ND	0.0824	pereng indication takes V. A	anatrija	res angula (septembro) na padra di periodo di periodo de la composició de la composició de la composició de la		with the Chille Colors and	
Total HpCDF DL - Sample specife esti		0.116	desirable de la companie de la comp					

EMPC - Estimated maximum possible concentration

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Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: PR103	LDEB (Primary)								EPA Me	thod 1613F
Project: Lowe	a Solutions, Inc. er Passiac River Study CSO/SWO ug-2013 18:13	Sample I Matrix: Sample	Aqueous		Lat QC	boratory Data o Sample: 'Batch: te Analyzed:	1300565-01 B3H0058 23-Aug-13 21:2	Date Received: Date Extracted: 24 Column: ZB-5M	22-Aug-2013	9:57
Analyte C	onc. (pg/L)	DL	EMPC	Qualifiers		Labeled Stand	ard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.0762			IS	13C-2,3,7,8-T('DD	64.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0893				13C-1,2,3,7,8-1	PeCDD	75.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.113				13C-1,2,3,4,7,8	3-HxCDD	63.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.129				13C-1,2,3,6,7,8	3-HxCDD	64.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.148				13C-1,2,3,7,8,9	-HxCDD	61.1	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND		_0.207			13C-1,2,3,4,6,7	7,8-HpCDD	80.3	23 - 140	
OCDD	0.935			G		13C-OCDD		73.5	17 - 157	
2,3,7,8-TCDF	ND	0,0517				13C-2,3,7,8-TC	CDF	72.7	24 - 169	
1,2,3,7,8-PeCDF	ND	0.0652				13C-1,2,3,7,8-J	PeCDF	69.4	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0670				13C-2,3,4,7,8-I	PeCDF	73.5	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.0666				13C-1,2,3,4,7,8	8-HxCDF	58.0	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0649				13C-1,2,3,6,7,8	8-HxCDF	55.5	26 - 123	
2,3,4,6,7,8-HxCDF	ND_	0.0711				13C-2,3,4,6,7,8	8-HxCDF	64.1	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0949				13C-1,2,3,7,8,9	-HxCDF	61.9	29 - 147	
1,2,3,4.6,7,8-HpCDF	ND	0.220				13C-1,2,3,4,6,7	7,8-HpCDF	68.3	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.0888				13C-1,2,3,4,7,8	,9-HpCDF	74.6	26 - 138	er se se more crimere un han
OCDP	ND	0.120				13C-OCDF		70.0	17 - 157	
				and district and d	CRS	37CI-2,3,7,8-Te	CDD	70.2	35 - 197	ti i Burtus tiltas sur tikus suu (j. suu
						Toxic Equivale	nt Quotient (TE	Q) Data		
						TEQMinWHO2	2005Dioxin	0.000281		
TOTALS										
Total TCDD	ND	0.0762								
Total-PeCDD		-0.0893								
Total HxCDD	ND	0.234	and the second s			1. M. V.				
Total HpCDD	0.173	and the second s	- 0.379			K// \				
Total TCDF	ND	0.0517		Security of the second		× 4/5,				
Total PeCDF	ND	0.0947								
Total HxCDF	ND	0.108				ere ag allere eggenesie in	. No a Charles and a second of	and the same of the analysis of the same and a same	Salasan asatra ta salah salah	
Total HpCDF	ND	0.237				2011	NASO SECURIO DE CONTRESE DE SECURIO DE SECUR			
DL - Sample specife est	imated detection limit				LCL-UC	L- Lower control lim	it - upper control limit	f ·		

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: PR103	LDEB (Secondary)			·				EPA Me	thod 1613
Project: Lowe	ra Solutions, Inc. er Passiac River Study CSO/SWO aug-2013 18:13	Sample Data Matrix: Aqueous Sample Size: 9.75 L		Lab QC	oratory Data Sample: Batch: Analyzed:	1300565-03 B3H0058 23-Aug-13 20:3	Date Received: Date Extracted: 5 Column: ZB-5MS	22-Aug-2013	9:57
Analyte C	Conc. (pg/L)	DL EMPC	Qualifiers		Labeled Stan	dard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	$\mathbf{A}_{\mathbf{B}}$		marian and a superior of the s	IS	13C-2,3,7,8-T	CDD	80.4	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0533			13C-1,2,3,7,8	-PeCDD	89.4	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.172			13C-1,2,3,4,7	,8-HxCDD	85.2	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.346			13C-1,2,3,6,7	,8-HxCDD	89.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.189			13C-1,2,3,7,8	,9-HxCDD	87.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	0.980		G		13C-1,2,3,4,6	,7,8-HpCDD	93.9	23 - 140	
OCDD	13.3				13C-OCDD		85.8	17 - 157	
2,3,7,8-TCDF	ND	0.0666			13C-2,3,7,8-T	CDF	94.6	24 - 169	
1,2,3,7,8-PeCDF	ND	√ 0.0945			13C-1,2,3,7,8	-PeCDF	86.8	24 - 185	
2,3,4,7,8-PeCDF	ND	0.188			13C-2,3,4,7,8	-PeCDF	91.3	21 - 178	Secretary Section 1995
1,2,3,4,7,8-HxCDF	ND	0.0573			13C-1,2,3,4,7	,8-HxCDF	79.2	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0592			13C-1,2,3,6,7	,8-HxCDF	75.8	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.0671			13C-2,3,4,6,7	,8-HxCDF	82.5	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0800			13C-1,2,3,7,8	,9-HxCDF	86.5	29 - 147	and the second second
1,2,3,4,6,7,8-HpCDF	ND	0.183			13C-1,2,3,4,6	,7,8-HpCDF	85.3	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.0488			13C-1,2,3,4,7	,8,9-HpCDF	88.8	26 - 138	
OCDF .	ND	0.158			13C-OCDF		81.4	17 - 157	
Chimograph consistence and consistence as a second				CRS	37CI-2,3,7,8-7	ГCDD	88.2	35 - 197	
					Toxic Equiva	lent Quotient (TEC	Q) Data		
					TEQMinWHO)2005Dioxin	0.0138		
TOTALS .									
Total TCDD	ND	0.0602			and the second control of the				
Total PeCDD-		0.108 constraints and 0.108 constraints are constraints and 0.108 constraints and 0.108 constraints are const							
Total HxCDD	ND	0.0650	The state of the s		1 1/10	Ŵ.	and the State of the second		
Total HpCDD	1.97				$-\langle \chi_{d_{\mu}}, \gamma_{\ell} \rangle$				
Total TCDF	ND	0.154	i Linear San telepare Distance es	Asset of a	V 2/4			ayan kali da kara da Sana da	and the second of the second
Total PeCDF	ND	0.202							
Total HxCDF	0.116	0.187		less, because		on the self-recitive is a reserve to			
Total HpCDF	ND timated detection limit	onication of the property of t				mit - upper control limit			

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Project: Lo	erra Solutions, Inc. wer Passiac River Study CSO/SWO -Aug-2013 18:13	Sample Data Matrix: Filter		Lab QC	boratory Data o Sample: Batch: te Analyzed:	1300565-02 B3H0059 24-Aug-13 12:00	Date Received: Date Extracted: Column: ZB-5MS	22-Aug-2013	
Analyte	Conc. (pg/Sample)	DL EMPG	Qualifiers		Labeled Stan	dard	%R	LCL-UCL	Qualifiers
2,3,7;8-TCDD	ND	0.287		IS	13C-2,3,7,8-T	Control of the Contro	84.1	25 - 164	
1,2,3,7,8-PeCDD	ND	0.420	and the state of t		13C-1,2,3,7,8	. A to Carlo Describeration is a second con-	75.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.483			13C-1,2,3,4,7	,8-HxCDD	89.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.477	i Salah kacamatan kacam		13C-1,2,3,6,7		95.1	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.582			13C-1,2,3,7,8	,9-HxCDD	90.1	32 - 141	
1,2,3,4,6,7,8-HpCDD		0.895			13C-1,2,3,4,6	,7,8-HpCDD	79.0	23 - 140	
OCDD	ND	3.38			13C-OCDD		79.2	17 - 157	
2,3,7,8-TCDF	ND	0.282			13C-2,3,7,8-T	CDF	79.9	24 - 169	
1,2,3,7,8-PeCDF	ND	0.230			13C-1,2,3,7,8	-PeCDF	77.1	24 - 185	
2,3,4,7,8-PeCDF	ND	0.230			13C-2,3,4,7,8	-PeCDF	72.9	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.153			13C-1,2,3,4,7	,8-HxCDF	89.3	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.145			13C-1,2,3,6,7	,8-HxCDF	98.2	26 - 123	
2,3,4,6,7,8-HxCDF	ND.	0.173			13C-2,3,4,6,7	,8-HxCDF	93.1	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.252			13C-1,2,3,7,8	,9-HxCDF	86.6	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.246			13C-1,2,3,4,6	,7,8-HpCDF	83.1	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.422			13C-1,2,3,4,7	,8,9-HpCDF	80.1	26 - 138	
OCDF	ND	0.479			13C-OCDF		77.6	17 - 157	
Marie en communicación de communicación de sentido de contrato de companyo de contrato de				CRS	37C1-2,3,7,8-	TCDD .	84.9	35 - 197	
						lent Quotient (TEQ			
					TEQMinWH()2005Dioxin	0.00		
TOTALS									**************************************
Total TCDD	ND	0.287		la de la companya de	Christades of DCA 5500		aran kan dalam da kalendari kan		
-Total PeCDD	and the second s	().4 <u>7</u> 1)			. (
Total HxCDD	ND	0.582		1 6					
Total HpCDD	ND	0.895		1	A 4/3,				
Total TCDF	ND	0.282		Significati					
Total PeCDF	ND ND	0.230 0.252							
Total HxCDF	MD	0.252 							
	estimated detection limit naximum possible concentration	0.422				mit - upper control limit using zero for the concent	tration of congeners that	are not detected.	

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Sample ID: PR103L	PEB (Secondary)								EPA Me	thod 1613
Project: Lower	Solutions, Inc. Passiac River Study CSO/SWO g-2013 18:13	Sample D Matrix;	Pata Filter		Lab QC	boratory Data Sample: Batch: e Analyzed:	1300565-04 B3H0064 24-Aug-13 12:5	Date Received: Date Extracted: 2 Column: ZB-5MS	22-Aug-2013	
Analyte Cor	nc. (pg/Sample)	DL	EMPC	Qualifiers		Labeled Stan	dard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.285		and the second s	IS	13C-2,3,7,8-T	CDD	80.4	25 - 164	
1,2,3,7,8-PeCDD	ND	0.332				13C-1,2,3,7,8	-PeCDD	87.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.477				13C-1,2,3,4,7	,8-HxCDD	91.0	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.492				13C-1,2,3,6,7	,8-HxCDD	92.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.563				13C-1,2,3,7,8	,9-HxCDD	93.6	32 - 141	
1,2,3,4,6,7,8-HpCDD	1.64			G		13C-1,2,3,4,6	,7,8-HpCDD	77.3	23 - 140	.,
OCDD	11.8					13C-OCDD		70.0	17 - 157	
2,3,7,8-TCDF	ND	0.308				13C-2,3,7,8-T	CDF	70.2	24 - 169	
1,2,3,7,8-PeCDF	ND >	0.206				13C-1,2,3,7,8	-PeCDF	83.7	24 - 185	
2,3,4,7,8-PeCDF	ND	0.192				13C-2,3,4,7,8	-PeCDF	86.4	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.238				13C-1,2,3,4,7	,8-HxCDF	91.9	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.223				13C-1,2,3,6,7	,8-HxCDF	102	26 - 123	and a sure or commercial form
2,3,4,6,7,8-HxCDF	ND	0.263				13C-2,3,4,6,7	,8-HxCDF	95.6	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.417				13C-1,2,3,7,8	and the second of the second o	87.0	29 - 147	a ta a a tha tha fin a ta a a a th
1,2,3,4,6,7,8-HpCDF	ND	0.343				13C-1,2,3,4,6	,7,8-HpCDF	78.5	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.596				13C-1,2,3,4,7	,8,9-HpCDF	69.4	26 - 138	The state of the s
OCDE/	ND		1.62			13C-OCDF		69.3	17 - 157	
			minera emergen el tenes i dels infraema mindemassimente i necessi de fanda i empresa.		CRS	37Cl-2,3,7,8-7	ГCDD	79.4	35 - 197	and the property of the same
					Toxic Equivalent Quotient (TEQ) Data					
						TEQMinWHO)2005Dioxin	0.0199	WOOD TO THE	
TOTALS										
Total TCDD	ND	0.285							1 - 12	
Total PeCDD	W)	0.332				. (
Total HxCDD	ND	0.563				111 186	4			
Total HpCDD	3.88	-				X) 100%				
Total TCDF	ND	0.308	arren e santa Sarara Martin America			0/5		and the district section of the con-		
Total PeCDF	ND	0.206								
Total HxCDF	ND	0.417	and the second of the second of the			The second second second second second		gaza e Sager and a construction		mark and the
Total HpCDF DL - Sample specific estim		0.596					mit - upper control limit			

EMPC - Estimated maximum possible concentration

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Client Data Name: Tierra		Sample	- ' '.		1					
Project: Lower	a Solutions, Inc. r Passiac River Study CSO/SWO ct-2013 8:30	Matrix			Lab QC	boratory Data o Sample: Batch: te Analyzed:	1300678-01 B3J0088 27-Oct-13 04:07	Date Received: Date Extracted: Column: ZB-5MS		
Analyte Co	onc. (pg/L)	DL	EMPC	Qualifiers		Labeled Stan	dard	%R	LCL-UCL	Qualifiers
2.3.7.8-TCDD			0, 127	umamonen usua aureni marian in engli	IS	13C-2,3,7,8-T	CDD	78.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0504				13C-1,2,3,7,8-	-PeCDD	56.7	25 - 181	and the second second
1,2,3,4,7,8-HxCDD	ND	0.0550				13C-1,2,3,4,7,	8-HxCDD	64.5	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.0654				13C-1,2,3,6,7,	8-HxCDD	64.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.0695				13C-1,2,3,7,8,	9-HxCDD	61.1	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.117				13C-1,2,3,4,6,	7,8-HpCDD	55.0	23 - 140	
OCDD	ND		0.453			13C-OCDD		46.6	17 - 157	
2,3,7,8-TCDF	ND	0.0343				13C-2,3,7,8-T	CDF	80.8	24 - 169	
1,2,3,7,8-PeCDF	ND	0.0341				13C-1,2,3,7,8-		63.5	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0330	1,547,186,186,186,176			13C-2,3,4,7,8-	Control of the Control of Control	63.2	21 - 178	
1,2,3,4,7,8-HxCDF	0.127			G		13C-1,2,3,4,7,	and the service of the service of	65.1	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0311	Section Control No. 50 Section Control Co.			13C-1,2,3,6,7,		65.4	26 - 123	and the same of
2,3,4,6,7,8-HxCDF	ND	0.0375				13C-2,3,4,6,7,	The Salar Section Control of	63.8	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0535	and the second of the second s			13C-1,2,3,7,8,		59.2	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND		0.184			13C-1,2,3,4,6,		57.1	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.0816				13C-1,2,3,4,7,	control of the section of the sectio	54.6	26 - 138	
OCDF .	0.596			G		13C-OCDF		44.8	17 - 157	
Li minimum min				CONTROL OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER	CRS	37Cl-2,3,7,8-T	CDD	87.4	35 - 197	Taran Maria Maria Maria Mangarana an
TOTALS										
Total TCDD	0.0700		0.197							
Total PeCDD	-	0.0504				. (sa na sa an ann an a	
Total HxCDD	ND	0.0695				111 711				
Total HpCDD	ND	0.117	nagen military in the Control of the			$\nabla = (2a)^{-1}$				
Total TCDF	ND	0.0343				ΩV^{r}				
Total PeCDF	ND	0.0341	The second second second			Market Comment				
Total HxCDF	-0.127									
Total HpCDF DL - Sample specific esti			0.184							

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

EPA Method 1613B Sample ID: PRICSOCLYWW-02B Client Data Sample Data Laboratory Data Name: Tierra Solutions, Inc. Matrix: Aqueous Lab Sample: 1300844-01 Date Received: 11-Dec-2013 10:31 Project: Lower Passiac River Study CSO/SWO Sample Size: 9.73 L QC Batch: B4A0025 Date Extracted: 07-Jan-2014 8:15 07-Dec-2013 2:15 Date Collected: Date Analyzed: 13-Jan-14 08:36 Column: ZB-5MS Analyst: MAS LCL-UCL EMPC Qualifiers Analyte Conc. (pg/L) DL Labeled Standard %R Qualifiers 2,3,7,8-TCDD ND 0.246 IS 13C-2,3,7,8-TCDD 67.8 25 - 164 1,2,3,7,8-PeCDD ND 0.728 13C-1,2,3,7,8-PeCDD 68.0 25 - 181 0.801 G 32 - 141 1,2,3,4,7,8-HxCDD 13C-1,2,3,4,7,8-HxCDD 51.5 1,2,3,6,7,8-HxCDD 2.56 G 13C-1,2,3,6,7,8-HxCDD 52.9 28 - 130 1.74 \mathbf{G} 32 - 141 1,2,3,7,8,9-HxCDD 13C-1,2,3,7,8,9-HxCDD 48.7 84.3 1,2,3,4,6,7,8-HpCDD 13C-1,2,3,4,6,7,8-HpCDD 49.5 23 - 140 OCDD 1090 13C-OCDD 52.8 17 - 157 0.396 2,3,7,8-TCDF ND 13C-2,3,7,8-TCDF 76.7 24 - 1691,2,3,7,8-PeCDF ND 0.436 13C-1,2,3,7,8-PeCDF 90.8 24 - 185 G 0.537 2,3,4,7,8-PeCDF 13C-2,3,4,7,8-PeCDF 91.6 21 - 1781,2,3,4,7,8-HxCDF 1.68 G 13C-1,2,3,4,7,8-HxCDF 65,5 26 - 152 G 1,2,3,6,7,8-HxCDF 1.83 13C-1,2,3,6,7,8-HxCDF 56.8 26 - 1232,3,4,6,7,8-HxCDF 4:72 G 28 - 136 13C-2,3,4,6,7,8-HxCDF 55.0 1,2,3,7,8,9-HxCDE ND 0.504 13C-1,2,3,7,8,9-HxCDF 52.1 29 - 147 1,2,3,4,6,7,8-HpCDF 25.1 48.8 28 - 143 13C-1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF ND 1.82 13C-1,2,3,4,7,8,9-HpCDF 55.8 26 - 138 60.4 13C-OCDF 51.0 17 - 157 CRS 37CI-2,3,7,8-TCDD 113 35 - 197 TOTALS Total TCDD ND 0.308 Total PcCDD 4.12 4:60 19.7 Total HxCDD 200 Total HpCDD Total TCDF 0.370 7.00 4.95 Total PeCDF Total HxCDF 28.4 Total HpCDF 52.4

LCL-UCL- Lower control limit - upper control limit

Project 1300844

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

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Sample ID: PRIWV	VDUP-02B				A Committee of the Comm		EPA Me	thod 16131		
Client Data Name: Tierra Solutions, Inc. Project: Lower Passiac River Study CSO/SWO Date Collected: 07-Dec-2013 2:15		Sample Matri Samp			Lab Sample: 1300844-02 Date Received: 11-Dec-2013 QC Batch: B4A0025 Date Extracted: 07-Jan-2014 Date Analyzed: 13-Jan-14 09:26 Column: ZB-5MS Analyst: MAS					
Analyte Co	nc. (pg/L)	DL	EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers	
2, 3,7,8-TCDD	ND	0.166			IS	13C-2,3,7,8-TCDD	63,6	25 - 164		
1,2,3,7,8-PeCDD	ND		0.421			13C-1,2,3,7,8-PeCDD	60.2	25 - 181		
1,2,3,4,7,8-HxCDD	0.893			/ G		13C-1,2,3,4,7,8-HxCDD	47.6	32 - 141		
1,2,3,6,7,8-HxCDD	2.76					13C-1,2,3,6,7,8-HxCDD	49.5	28 - 130		
1,2,3,7,8,9-HxCDD	1.94			G		13C-1,2,3,7,8,9-HxCDD	45.4	32 - 141		
1,2,3,4,6,7,8-HpCDD	87.4					13C-1,2,3,4,6,7,8-HpCDD	46.1	23 - 140		
OCDD	1230				15.55	13C-OCDD	44.7	17 - 157		
2,3,7,8-TCDF	0.159			G		13C-2,3,7,8-TCDF	65.2	24 - 169		
1,2,3,7,8-PeCDF	ND /	0.495				13C-1,2,3,7,8-PeCDF	64.5	24 - 185		
2,3,4,7,8-PeCDF	ND	0.490				13C-2,3,4,7,8-PeCDF	66.6	21 - 178		
1,2,3,4,7,8-HxCDF	2.05			G		13C-1,2,3,4,7,8-HxCDF	54.9	26 - 152		
1,2,3,6,7,8-HxCDF	2.11			G		13C-1,2,3,6,7,8-HxCDF	51,6	26 - 123		
2,3,4,6,7,8-HxCDF	194			G		13C-2,3,4,6,7,8-HxCDF	50.2	28 - 136		
1,2,3,7,8,9-HxCDE	ND	0.292				13C-1,2,3,7,8,9-HxCDF	48.9	29 - 147		
1,2,3,4,6,7,8-HpCDF	29.2					13C-1,2,3,4,6,7,8-HpCDF	46.4	28 - 143		
1,2,3.4,7,8,9-HpCDF	2.61					13C-1,2,3,4,7,8,9-HpCDF	50.5	26 - 138	A Committee of the Comm	
6 CDF −−−−−		***************				13C-OCDF	45.0	17 - 157		
		transfer as already			CRS	37CI-2,3,7,8-TCDD	105	35 - 197		
TOTALS			8							
Total TCDD	ND	0.224								
Total PeCDD	4.50		4,92							
Total HxCDD	20.9									
Total HpCDD	193									
Total TCDF	0.869									
Total PcCDF	7.03	and the second second								
Total HxCDE	34.0									
Total HpCDF	mated detection limit								-	

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Project 1300844

Sample ID: PR10	CSOCLYHP-02B						EPA Me	thod 1613B
Project: Lo	erra Solutions, Inc. wer Passiac River Study CSO/SWO -Dec-2013 2:15	Sample Data Matrix: Solid Sample Size: 13.8 g % Solids: 36.3		Laboratory Data Lab Sample: QC Batch: Date Analyzed:		Date Received: Date Extracted: Column: ZB-5MS Column: SP-2331	Analyst: MAS	10:02
Analyte	Conc. (pg/g)	DL EMPC	Qualifiers	Labeled Stan		%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 2,3,7,8-TCDF 1,2,3,4,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF	9590 3.47 2.78 4.04 12.0 11.6 10.5 ND 205	3.74	E G G	IS 13C-2,3,7,8-T 13C-1,2,3,4,7, 13C-1,2,3,4,6, 13C-0CDD 13C-2,3,7,8-T 13C-1,2,3,4,7, 13C-1,2,3,4,7, 13C-1,2,3,4,7, 13C-1,2,3,4,7, 13C-1,2,3,4,7, 13C-1,2,3,4,6,7, 13C-1,2,3,4,7,4,7,4,7,4,7,7,7,7,7,7,7,7,7,7,7,7	-PeCDD -ReCDD -ReCDD -PeCDF	87.4 92.2 93.4 94.5 92.8 104 112 90.5 95.4 96.3 88.1 88.0 87.2 93.4 90.3 100	25 - 164 25 - 181 32 - 141 28 - 130 32 - 141 23 - 140 17 - 157 24 - 169 24 - 185 21 - 178 26 - 152 26 - 123 28 - 136 29 - 147 28 - 143 26 - 138	
OCDF	444			13C-OCDF CRS 37CI-2,3,7,8-7		98.8 102	20 - 136 17 - 157 35 - 197	
TOTALS								
Total TCDD Total PeCDD Total HxCDD Total HpCDD	14.0] 2. 8 42.0 186 1620	45.8		ENF 2/26/1				
Total TCDF Total PeCDF Total HxCDF Total HpCDF	66.1 136 — 242 440	6/4	The contract of the contract o					
	estimated detection limit			LCL-UCL- Lower control lir	mit - upper control limit			

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight.

Sample ID: PR1HPDUP-0	2B								EPA Me	thod 1613B
Client Data Name: Tierra Solutior Project: Lower Passiac Date Collected: 07-Dec-2013	River Study CSO/SWO	Sample Data Matrix: Sample Size: % Solids:	Solid 15.4 g 36.4		Lab QC	ooratory Data Sample: Batch: e Analyzed:		Date Received: Date Extracted: Column: ZB-5MS Column: SP-2331	Analyst: MAS	10:02
Analyte Conc. (pg/g	<u>;).</u>	D EMP	**************************************	Qualifiers		Labeled Stan			LCL-UCL	Qualifiers
2,3,7,8-TCDD 1.60					IS	13C-2,3,7,8-T	CDD	85.7	25 - 164	
1,2,3,7,8-PeCDD 3.98				_ G		13C-1,2,3,7,8	-PeCDD	91.9	25 - 181	The second secon
1,2,3,4,7,8-HxCDD 6.16						13C-1,2,3,4,7	8-HxCDD	89.5	32 - 141	
1,2,3,6,7,8-HxCDD 19.8						13C-1,2,3,6,7	.8-HxCDD	92.1	28 - 130	
1,2,3,7,8,9-HxCDD 14.2						13C-1,2,3,7,8	9-HxCDD	90.3	32 - 141	
1,2,3,4,6,7,8-HpCDD 636						13C-1,2,3,4,6	7,8-HpCDD	101	23 - 140	
OCDD 9560						13C-OCDD		109	17 - 157	
2,3,7,8-TCDF 2.88						13C-2,3,7,8-T	CDF	86.9	24 - 169	
1,2,3,7,8-PeCDF 2.66				\mathbf{G}		13C-1,2,3,7,8	-PeCDF	91.8	24 - 185	
2,3,4,7,8-PeCDF 2.82				G		13C-2,3,4,7,8	-PeCDF	93.3	21 - 178	
1,2,3,4,7,8-HxCDF 11.7						13C-1,2,3,4,7	8-HxCDF	83.9	26 - 152	
1,2,3,6,7,8-HxCDF 11.1						13C-1,2,3,6,7,	8-HxCDF	84.0	26 - 123	
2,3,4,6,7,8-HxCDF 7.89						13C-2,3,4,6,7,	8-HxCDF	85.6	28 - 136	
1,2,3,7,8,9-HxCDF ND	2.	76				13C-1,2,3,7,8,	9-HxCDF	87.9	29 - 147	
1,2,3,4,6,7,8-HpCDF 197						13C-1,2,3,4,6	7,8-HpCDF	88.4	28 - 143	
1,2,3,4,7,8,9-HpCDF 12.5						13C-1,2,3,4,7,	8,9-HpCDF	95.2	26 - 138	
OCDF 458						13C-OCDF		99.7	17 - 157	
				Keekepkalaamaleetrangeissaaneeppeleete	CRS	37Cl-2,3,7,8-7	CDD	98.9	35 - 197	
TOTALS										
Total TCDD 10.3		43.8	- 12,1							
Total PeCDD 42.4		43,1					V Ex			
Total HxCDD 166			and the same of th	and the state of t						
Total HpCDD 1460						(2) 12		and the second		
Total TCDF 64.3						* N*				
Total PeCDF 121	the first the second	126		S. San			eriodore de Norte de			
Total HxCDF 231										
Total HpCDF 429			minore and statement of the second							
DL - Sample specife estimated dete	ction limit			11 - 11 - 11 - 11 - 11 - 11 - 11 - 11	LCL-UC	L- Lower control lis	nit - upper control limit			

The results are reported in dry weight. The sample size is reported in wet weight.

Sample ID: PR1090	FRB						EPA Me	thod 1613E
Project: Lowe	Solutions, Inc. r Passiac River Study CSO/SWO ct-2013 12:00	Sample Data Matrix: Aqueous Sample Size: 9.59 L		Laboratory Data Lab Sample: QC Batch: Date Analyzed:	1300693-01 B3K0002 04-Nov-13 18:2	Date Received: Date Extracted: 2 Column: ZB-5MS	12-Oct-2013 01-Nov-2013 Analyst: FEB	
Analyte Co	onc. (pg/L)	DL EMPC	Qualifiers	Labeled Stand	lard	%R	LCL-UCL	Qualifiers
2,3.7,8-TCDD	and the $1\cdot 4$. It is a superior of the supe			IS 13C-2,3,7,8-T0	CDD	84.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.109		13C-1,2,3,7,8-1	PeCDD	69.5	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.0926		13C-1,2,3,4,7,8	8-HxCDD	61.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.100		13C-1,2,3,6,7,8	3-HxCDD	68.2	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.125		13C-1,2,3,7,8,9	-HxCDD	61.6	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.189		13C-1,2,3,4,6,7	7,8-HpCDD	51.5	23 - 140	
OCDD	2.70		G	13C-OCDD		43.6	17 - 157	
2,3,7,8-TCDF	0.176		G	13C-2,3,7,8-T(CDF	86.0	24 - 169	
1,2,3,7,8-PeCDF	ND	0.0840		13C-1,2,3,7,8-1	PeCDF	69.4	24 - 185	
2,3,4,7,8-PeCDF	ND	0.286		13C-2,3,4,7,8-1	PeCDF	73.8	21 - 178	and the second
1,2,3,4,7,8-HxCDF	2.51		G	13C-1,2,3,4,7,8	8-HxCDF	61.8	26 - 152	
1,2,3,6,7,8-HxCDF	0.422		G	13C-1,2,3,6,7,8	a facility of control of the first control of the	62.7	26 - 123	
2,3,4,6,7,8-HxCDF	0.215		G	13C-2,3,4,6,7,8	3-HxCDF	63.9	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.115		13C-1,2,3,7,8,9	endings and annual diseases.	58.4	29 - 147	
1,2,3,4,6,7,8-HpCDE	8.23			13C-1,2,3,4,6,7	7.8-HpCDF	55.8	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.220		13C-1,2,3,4,7,8	randrolle de de la companya de la c	53.1	26 - 138	and the second and an artist of the second
OCDF	22.0			13C-OCDF		46.3	17 - 157	
- Andrewson and the second				CRS 37Cl-2,3,7,8-T	CDD	90.6	35 - 197	
TOTALS								
Total TCDD	1.42	1.62						
Total-PeCDD	$\mathcal{A}_{A}}}}}}}}}}$	0,109		24(3.16	and the second s			general and the second
Total HxCDD	ND	0.125						
Total HpCDD	0.345			X 20 X				
Total TCDF	0.802							
Total PeCDF	1.23	1.89						
Total HxCDF	-492	5.06						
Total HpCDF	$\frac{1}{2} \left(\frac{1}{2} \left$			LCL-UCL- Lower control lim				

EMPC - Estimated maximum possible concentration

Sample ID: PR1011	HLLC			kita jain till 1904 at til 1904 til 1904 til 1904 medissi kitalisista til 1904 til 1904 til 1904 til 1904 til 1	AND THE REAL PROPERTY OF THE P		EPA Me	thod 16131
Project: Lowe	a Solutions, Inc. r Passiac River Study CSO/SWO ct-2013 14:30	Sample Data Matrix: Aqueous Sample Size: 9.17 L		Laboratory Data Lab Sample: QC Batch; Date Analyzed:	1300693-02 B3K0002 04-Nov-13 19:1	Date Received: Date Extracted: 3 Column: ZB-5M	01-Nov-2013	
Analyte Co	onc. (pg/L)	DL EMPC Q	ualifiers	Labeled Star	ıdard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	\overline{MD}	0.0605	nteratorioristato es consessos.	IS 13C-2,3,7,8-7	rcdd	82.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0680		13C-1,2,3,7,8	R-PeCDD	75.6	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.0665		13C-1,2,3,4,7	7,8-HxCDD	73.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.0731		13C-1,2,3,6,7	,8-HxCDD	80.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.0819		13C-1,2,3,7,8	3,9-HxCDD	75.6	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.170		13C-1,2,3,4,6	,7,8-HpCDD	63.2	23 - 140	
OCDD	ND	0.152		13C-OCDD		56.8	17 - 157	
2,3,7,8-TCDF	ND	0.0438		13C-2,3,7,8-1	CDF	80.8	24 - 169	The second section of the second
1,2,3,7,8-PeCDF	ND	0.0308		13C-1,2,3,7,8	-PeCDF	77.2	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0283		13C-2,3,4,7,8	-PeCDF	80.2	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.0278		13C-1,2,3,4,7	,8-HxCDF	73.7	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0272		13C-1,2,3,6,7	,8-HxCDF	75.0	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.0305		13C-2,3,4,6,7	',8-HxCDF	78.3	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0417		13C-1,2,3,7,8	,9-HxCDF	71.8	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.0457		13C-1,2,3,4,6	,7,8-HpCDF	68.6	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.0698		13C-1,2,3,4,7	',8,9-HpCDF	66.7	26 - 138	
OCDP .	ND	0.119		13C-OCDF		57.7	17 - 157	
				CRS 37CI-2,3,7,8-	TCDD	84.1	35 - 197	
TOTALS								***************************************
Total TCDD	ND	0.0605						
Total PeCDD		were 0.0680 commenced in the commenced continuous and the commenced comme						and the second second second
Total HxCDD	ND	0.0819		$\sim 10^{-1}$				
Total HpCDD	ND	0.170		Mr, ruel,				
Total TCDF	ND	-0.0438		- V - 1\¢				
Total PeCDF	ND	0.0308		<i>d</i> .				
Total HxCDF	─ND	0.0417						
Total HpCDF DL - Sample specific esti		0.0698	distribution and the state of t					

LCL-UCL- Lower control limit - upper control limit

Sample ID: PR1CS	SOCLYHD-02B					EPA Me	thod 1613]
Project: Lowe	ra Solutions, Inc. er Passiac River Study CSO/SWO bec-2013 2:15	Sample Data Matrix: Aqu Sample Size: 9.66	ieous 5 L	Laboratory Data Lab Sample: 1300838-01 QC Batch: B3L0139 Date Analyzed: 02-Jan-14 23:	Date Receive Date Extracte 42 Column: ZB-5M	d: 31-Dec-2013	
Analyte C	Conc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.187		IS 13C-2,3,7,8-TCDD	61.6	25 - 164	
1,2,3,7,8-PeCDD	ND	0.250		13C-1,2,3,7,8-PeCDD	67.8	25 - 181	
1,2,3,4,7,8-HxCDD	0.606		G	13C-1,2,3,4,7,8-HxCDD	42.0	32 - 141	
1,2,3,6,7,8-HxCDD	1.79		G	13C-1,2,3,6,7,8-HxCDD	41.3	28 - 130	
1,2,3,7,8,9-HxCDD	1.22		G	13C-1,2,3,7,8,9-HxCDD	41.6	32 - 141	
1,2,3,4,6,7,8-HpCDD	38.5			13C-1,2,3,4,6,7,8-HpCDD	47.8	23 - 140	
OCDD	338			13C-OCDD	41.4	17 - 157	
2,3,7,8-TCDF	ND	0.154	Anna Chairman ann an Aireann ann an Tairean Aireann ann a	13C-2,3,7,8-TCDF	59.9	24 - 169	
1,2,3,7,8-PeCDF	ND	0.224		13C-1,2,3,7,8-PeCDF	63.1	24 - 185	
2,3,4,7,8-PeCDF	0.288	Control of Control of Control of the	G	13C-2,3,4,7,8-PeCDF	64.9	21 - 178	Control of the Contro
1,2,3,4,7,8-HxCDF	1.23			13C-1,2,3,4,7,8-HxCDF	53.2	26 - 152	
1,2,3,6,7,8-HxCDF	1.45	and the first section of the section	G	13C-1,2,3,6,7,8-HxCDF	52.0	26 - 123	
2,3,4,6,7,8-HxCDF	1.10			13C-2,3,4,6,7,8-HxCDF	51.8	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.188	ng an an tha basan, tha agus gir an agus fanan an bana bana bana an an agus an an agus an agus an a	13C-1,2,3,7,8,9-HxCDF	49.6	29 - 147	
1,2,3,4,6,7,8-HpCDF	17.3			13C-1,2,3,4,6,7,8-HpCDF	50.1	28 - 143	
1,2,3,4,7,8,9-HpCDF	1.58	er gelege ger gjørere er er og er en er er filmer er e	G	13C-1,2,3,4,7,8,9-HpCDF	50.9	26 - 138	5/5/5/5/5/5/11/11/11/5/5
OCDE/	42.3			13C-OCDF	44.0	17 - 157	
**************************************			essaniama aneministra aneminis	CRS 37Cl-2,3,7,8-TCDD	114	35 - 197	and a family
TOTALS							
Total TCDD	0.275						
Total-PeCDD	1.02	$1.50 \cdots$		The second secon		in the second of	
Total HxCDD	12.1			Lak No			
Total HpCDD	74.3		Andrew Control of the	711/1/1		Samuel Committee of the	and the second second second
Total TCDF	ND	-0.379		Y N			
Total PeCDF	3.97						and the street of the control of the
Total HxCDF	21.4						
Total-HpCDF DL - Sample specife es	39.0						

EMPC - Estimated maximum possible concentration

Sample ID: PR1HI	DDUP-02B	enemona a ana estra en en esta						EPA M	thod 16131
Project: Lowe	a Solutions, Inc. er Passiac River Study CSO/SWO ec-2013 2:15	Sample Matrix Sample	: Aqueous		Laboratory Data Lab Sample: QC Batch: Date Analyzed:	1300838-02 B3L0139	Date Received: Date Extracted: 4 Column: ZB-5MS	31-Dec-2013	8:51
Analyte C	onc. (pg/L)	DL	EMPC	Qualifiers	Labeled Sta	ndard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.476			IS 13C-2,3,7,8	TCDD	62.1	25 - 164	
1,2,3,7,8-PeCDD	ND	0.504			13C-1,2,3,7,	8-PeCDD	59.8	25 - 181	
1,2,3,4,7,8-HxCDD	0.505			/ G	13C-1,2,3,4,	7,8-HxCDD	43.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND		1.44		13C-1,2,3,6,	7,8-HxCDD	35.6	28 - 130	
1,2,3,7,8,9-HxCDD	135			G	13C-1,2,3,7,	8,9-HxCDD	39.6	32 - 141	
1,2,3,4,6,7,8-HpCDD	30.5				13C-1,2,3,4,	6,7,8-HpCDD	47.4	23 - 140	
OCDD	199				13C-OCDD		45.7	17 - 157	
2,3,7,8-TCDF	ND	0.146			13C-2,3,7,8-	TCDF	62.2	24 - 169	
1,2,3,7,8-PeCDF	ND	0.296			13C-1,2,3,7,	8-PeCDF	58.7	24 - 185	
2,3,4,7,8-PeCDF	ND	0.306			13C-2,3,4,7,	8-PeCDF	62.2	21 - 178	
1,2,3,4,7,8-HxCDF	0.959			G	13C-1,2,3,4,	7,8-HxCDF	51.3	26 - 152	
1,2,3,6,7,8-HxCDF	1.08			G	13C-1,2,3,6,	7,8-HxCDF	52.2	26 - 123	
2,3,4,6,7,8-HxCDF	0.962			G	13C-2,3,4,6,	7,8-HxCDF	50.6	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.268			13C-1,2,3,7,	8,9-HxCDF	49.5	29 - 147	
1,2,3,4,6,7,8-HpCDE	(1)4				13C-1,2,3,4,	6,7,8-HpCDF	48.1	28 - 143	
1,2,3,4,7,8,9-HpCDF	1.20			G	* Programme and the state of the second s	7,8,9-HpCDF	51.5	26 - 138	Server of the particle of the particle of the
OCDF/	32.5				13C-OCDF		45.2	17 - 157	
					CRS 37CI-2,3,7,8	-TCDD	82.1	35 - 197	and the second s
TOTALS									
Total TCDD	ND		0.136						
-Total PcCDD			0,890		1/2			and the second s	
Total HxCDD	7.05		10.8		CAN IN				
Total HpCDD	58.3	and the state of t	atterior and the second and the seco			X			
Total TCDF	0.228				(1,24)				
Total PeCDF	3.16		and the second second second second		Ø*\				
Total HxCDF	-145		16.9						
Total-HpCDF DL - Sample specife est									

Sample ID: PR1LPDUP-02B					EFA ME	thod 16131
Client Data Name: Tierra Solutions, Inc. Project: Lower Passiac River Study CSO/SWO Date Collected: 12-Dec-2013 14:20	Sample Data Matrix: Filter Sample Size: 0.128 g		Laboratory Data Lab Sample: 1300858-02 QC Batch: B4A0023 Date Analyzed: 13-Jan-14 07:4		ved: 13-Dec-2013 sted: 06-Jan-2014 SMS Analyst: MAS	
Analyte Conc. (pg/g)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD ND			IS 13C-2,3,7,8-TCDD	86.5	25 - 164	
1,2,3,7,8-PeCDD 18.1		_G	13C-1,2,3,7,8-PeCDD	95.3	25 - 181	
1,2,3,4,7,8-HxCDD ND	52.5		13C-1,2,3,4,7,8-HxCDD	74.3	32 - 141	
1,2,3,6,7,8-HxCDD 106		G	13C-1,2,3,6,7,8-HxCDD	76.8	28 - 130	
1,2,3,7,8,9-HxCDD 81.8		G	13C-1,2,3,7,8,9-HxCDD	74.5	32 - 141	
1,2,3,4,6,7,8-HpCDD 3160			13C-1,2,3,4,6,7,8-HpCDD	76.5	23 - 140	
OCDD 43100			13C-OCDD	89.9	17 - 157	
2,3,7,8-TCDF ND	17.4		13C-2,3,7,8-TCDF	68.1	24 - 169	
1.2,3,7,8-PeCDF 11.1		G	13C-1,2,3,7,8-PeCDF	90.5	24 - 185	
2,3,4,7,8-PeCDF 11.8		G	13C-2,3,4,7,8-PeCDF	93.0	21 - 178	*
1,2,3,4,7,8-HxCDF 53.8		G	13C-1,2,3,4,7,8-HxCDF	90.4	26 - 152	
1,2,3,6,7,8-HxCDF 61.9		G	13C-1,2,3,6,7,8-HxCDF	85.1	26 - 123	
2,3,4,6,7,8-HxCDF 74.6		G	13C-2,3,4,6,7,8-HxCDF	77.2	28 - 136	
1,2,3,7,8,9-HxCDF ND	23.1		13C-1,2,3,7,8,9-HxCDF	79.2	29 - 147	
1,2,3,4,6,7,8-HpCDF 1110			13C-1,2,3,4,6,7,8-HpCDF	76.2	28 - 143	
1,2,3,4,7,8,9-HpCDF ND	72.8	and the second second second second	13C-1,2,3,4,7,8,9-HpCDF	86.0	26 - 138	
OCDE 2600			13C-OCDF	87.6	17 - 157	
			CRS 37Cl-2,3,7,8-TCDD	98.4	35 - 197	and the second
TOTALS						
Total TCDD ND	21.7					
Total PeCDD 155			1.6 116			
Total HxCDD 716			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			
Total HpCDD 7610		ing and the second second		and the second of the		%
Total TCDF ND	20.2					
Total PeCDF 275	361	No exercise to the con-	Action to a recommendation of the comment of the same series			
Total HxCDF 1170						
Total HpCDF 2350	2420		LCL-UCL-Lower control limit - upper control limit			THE RESIDENCE OF THE PARTY OF T

Project 1300858

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Sample ID: PR1CS0	OCLYLP-02B							EPA Me	thod 1613E
Project: Lower	Solutions, Inc. Passiac River Study CSO/SWO c-2013 19:10	Sample Data Matrix: Sample Size:	Filter 0.0796 g	Lat QC	boratory Data Sample: Batch: te Analyzed:	1300858-01 B4A0023 13-Jan-14 06:59	Date Received: Date Extracted: Column: ZB-5MS	06-Jan-2014	13:52
Analyte Co	nc. (pg/g)	DL EMP	C Qualifiers		Labeled Stan	dard	%R	LCL-UCL	Qualifiers
-2,3,7,8-TCDD				IS	13C-2,3,7,8-T	CDD	86.0	25 - 164	
1,2,3,7,8-PeCDD	ND	42.3			13C-1,2,3,7,8	PeCDD	92.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	72.0		1	13C-1,2,3,4,7,	8-HxCDD	76.1	32 - 141	
1,2,3,6,7,8-HxCDD	156		G		13C-1,2,3,6,7,	8-HxCDD	77.5	28 - 130	
1,2,3,7,8,9-HxCDD	114		.∕ G		13C-1,2,3,7,8,	9-HxCDD	77.4	32 - 141	
1,2,3,4,6,7,8-HpCDD	4920				13C-1,2,3,4,6,	7,8-HpCDD	83.5	23 - 140	
OCDD	64000				13C-OCDD		85.9	17 - 157	: YOU HE.
2,3,7,8-TCDF	ND	24.2	and the second s		13C-2,3,7,8-T	CDF	68.4	24 - 169	
1,2,3,7,8-PeCDF	ND	^{29.8}			13C-1,2,3,7,8-	PeCDF	85.3	24 - 185	
2,3,4,7,8-PeCDF	ND	29.6			13C-2,3,4,7,8-		86.2	21 - 178	
1,2,3,4,7,8-HxCDF	ND	70.7			13C-1,2,3,4,7,	All Mark Sangaran and Control of the Control	91.4	26 - 152	
1,2,3,6,7,8-HxCDF	88.8		G		13C-1,2,3,6,7,	entitle factories and the second of the second	87.5	26 - 123	
2,3,4,6,7,8-HxCDF	93.4				13C-2,3,4,6,7,		83.4	28 - 136	
1,2,3,7,8,9-HxCDF	ND	29.3			13C-1,2,3,7,8,		79.9	29 - 147	and a ser Secret of Ser Secret of Line
1,2,3,4,6,7,8-HpCDE	1520				13C-1,2,3,4,6,		77.7	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	96.2	the color of the control of the cont		13C-1,2,3,4,7,	A STATE OF THE STA	86.1	26 - 138	and the transport of the same
OCDE/	3340				13C-OCDF		88.0	17 - 157	
				CRS	37C1-2,3,7,8-T	CDD	97.0	35 - 197	
TOTALS									
Total TCDD	ND	32.5							
Total PeCDD	$\frac{1}{2} \left(\frac{1}{2} \left$	230				alle i de la Maria de Maria de Sala de 2009.			and the second second second
Total HxCDD	983	105)		$\mathcal{L}WV$				
Total HpCDD	10100				V, 14P/1				
Total TCDF	20.9	48.5			1/4"				
Total PeCDF	378				*				
Total HxCDF	1540	1610							
Tetal HpCDF	3140								
DL - Sample specifc estir	mated detection limit			LCL-UC	L-Lower control lin	nit - upper control limit	7.		The state of the s

LCL-UCL-Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight.

Sample ID: PR1C	SOCLYLD-02B					EPA Met	hod 1613B
Project: Lov	rra Solutions, Inc. ver Passiac River Study CSO/SWO Dec-2013 19:10	Sample Data Matrix: Aqueous Sample Size: 9.93 L		Laboratory Data Lab Sample: 1300859-01 QC Batch: B4A0069 Date Analyzed: 16-Jan-14 21:	Date Received Date Extracte 08 Column: ZB-5M	d: 14-Jan-2014	
Analyte	Conc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	in an annual MTD			IS 13C-2,3,7,8-TCDD	57,4	25 - 164	
1,2,3,7,8-PeCDD	ND	0.290		13C-1,2,3,7,8-PeCDD	55.4	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.608		13C-1,2,3,4,7,8-HxCDD	36.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.691		13C-1,2,3,6,7,8-HxCDD	37.6	28 - 130	
1,2,3,7,8,9-HxCDD	0.530			13C-1,2,3,7,8,9-HxCDD	34.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	11.0			13C-1,2,3,4,6,7,8-HpCDD	34.1	23 - 140	
OCDD	73.2			13C-OCDD	35.1	17 - 157	
2,3,7,8-TCDF	ND	0,174		13C-2,3,7,8-TCDF	58.2	24 - 169	
1,2,3,7,8-PeCDF	ND	< 0.335		13C-1,2,3,7,8-PeCDF	62.2	24 - 185	
2,3,4,7,8-PeCDF	ND	0.310		13C-2,3,4,7,8-PeCDF	65.6	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.398		13C-1,2,3,4,7,8-HxCDF	43.9	26 - 152	
1,2,3,6,7,8-HxCDF	0.596			13C-1,2,3,6,7,8-HxCDF	39.9	26 - 123	
2,3,4,6,7,8-HxCDF	0.531			13C-2,3,4,6,7,8-HxCDF	38.3	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.310		13C-1,2,3,7,8,9-HxCDF	34.6	29 - 147	
1,2,3,4,6,7,8-HpCDF	(5.33			13C-1,2,3,4,6,7,8-HpCDF	34.1	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.543		13C-1,2,3,4,7,8,9-HpCDF	36.8	26 - 138	dana para ana asta per
OCDE .	10.2			13C-OCDF	35.4	17 - 157	
Monaconierius				CRS 37Cl-2,3,7,8-TCDD	94.4	35 - 197	5
TOTALS							
Total TCDD	ND	0.159					
Total PcCDD		······································	Control of the Contro	- CN () N/S			
Total HxCDD	3.32			L V NOV			
Total HpCDD	23.0	and the second s	Santa sua en el el el el		and the second second		
Total TCDF	0.129						
Total PeCDF	0.876	1.37		Land to the street and section of the contract of	r kan kan dan kemadan dan		Annual Control
Total HxCDE	5.68	6.84					
Fotal HpCDF	estimated detection limit			LCL-UCL- Lower control limit - upper control lii			

EMPC - Estimated maximum possible concentration

DUP-02B								EPA M	ethod 1613E
a Solutions, Inc. r Passiac River Study CSO/SWO cc-2013 14:20	Matri	x: Aqueous		Lab Samp QC Batch:	le: :	B4A0069	Date Extracted:	14-Jan-2014	15:19
one. (pg/L)	DL	EMPC	Qualifiers	Labe	led Standa	rd	%R	LCL-UCL	Qualifiers
ND	0.188		anning in seiseann anning ann an ann an ann an an an an an an an	IS 13C-	2,3,7,8 - TCI	DD	69.8	25 - 164	
ND	0.205			13C-	1,2,3,7,8-Pe	CDD	68.8	25 - 181	
0.535				13C-	1,2,3,4,7,8-	HxCDD	43.0	32 - 141	
0.548				13C-	1,2,3,6,7,8-	HxCDD	44.3	28 - 130	
ND		0.389		13C-	1,2,3,7,8,9-	HxCDD	41.2	32 - 141	
8.92				13C-	1,2,3,4,6,7,	8-HpCDD	42.5	23 - 140	
64.7				13C-	OCDD		44.8	17 - 157	
ND	0.139			13C-	2,3,7,8 - TCI	OF	65.4	24 - 169	
ND	0.264			13C-	1,2,3,7,8-Pe	:CDF	73.2	24 - 185	
ND	0.226			13C-	2,3,4,7,8 - Pe	:CDF	77.7	21 - 178	
0.549				13C-	1,2,3,4,7,8-	HxCDF	53.3	26 - 152	
ND		0.496		13C-	1,2,3,6,7,8-	HxCDF	48.1	26 - 123	
ND		0.322		13C-2	2,3,4,6,7,8-	HxCDF	46.5	28 - 136	
ND	0.131			13C-	1,2,3,7,8,9-	HxCDF	42.8	29 - 147	
3.93				🌉 a la caracteria de la Santa de Maria		and the second second second second second	41.7	28 - 143	
0.515				The second secon			47.0	26 - 138	
7.75				The state of the state of the state of			And the second s		
	in a design and the second section of the second			CRS 37Cl-	-2,3,7,8-TC	DD	95.0	35 - 197	The control of the second second
ND	0.188								
entrinon de la proprieta de contra co	-0.306			7500	N.V				
141		3.08	and the second	6,00) \				
19.8	and the second s	and the second s		2//					
ND	0.309								
0.665		1.31							
-395		5.52							
9,14									
	ND N	Sample (a Solutions, Inc. or Passiac River Study CSO/SWO occ-2013 14:20 DE ND ND 0.188 ND 0.205 0.535 0.548 ND 8.92 64.7 ND ND 0.139 ND 0.264 ND 0.226 0.549 ND ND ND ND ND ND ND ND ND N	Sample Data Matrix: Aqueous Sample Size: 9.72 L	Solutions, Inc. Passiac River Study CSO/SWO Sample Data Matrix: Aqueous Sample Size: 9.72 L	Sample Data Matrix: Aqueous Laborato Lab Sample Size: 9.72 L QC Batch Date Analone. (pg/L) DL EMPC Qualifiers Lab Sample Size: 9.72 L QC Batch Date Analone. (pg/L) DL EMPC Qualifiers Lab Sample Size: 9.72 L QC Batch Date Analone. (pg/L) DL EMPC Qualifiers Lab Sample Size: 9.72 L QC Batch Date Analone. (pg/L) DL EMPC Qualifiers Lab Sample Size: 9.72 L Date Analone. (pg/L) DL EMPC Qualifiers Lab Sample Size: 9.72 L Date Analone. (pg/L) Date An	Sample Data Matrix Aqueous Sample Size 9.72 L	Sample Data Matrix: Aqueous Sample: 1300859-02 QC Batch: B4A0069 Date Analyzed: 16-Jan-14 21:57	Sample Data Matrix: Aqueous Sample Size: 9.72 L Date Received: QC Batch: B4A0069 Date Received: Patch B4C000 Patch B4C0000 Patch B4C0000 Patch B4C0000 Patch B4C0000 Patch B4C0000 P	Sample Data Matrix: Aqueeus Sample Size: 9.72 L Laboratory Data Lab Sample: 1300859-02 Date Received: 13-Dec-2013 14:20 Date Analyzed: 16-Jan-14 21:57 Column: ZB-5MS Analyzt: MAS Date Analyzt: MAS Date Analyzed: 16-Jan-14 21:57 Column: ZB-5MS Analyzt: MAS Date Analyzt: Date Analyzt: MAS Date Analyzt: Date Analyz

Sample ID: PR104V	WWFB					EPA Me	thod 1613B
Project: Lower	solutions, Inc. r Passiac River Study CSO/SWO n-2014 14:15	Sample Data Matrix: Aqueous Sample Size: 9.88 L		Laboratory Data Lab Sample: 1400027-02 QC Batch: B4A0132 Date Analyzed: 29-Jan-14 15:3	Date Rece Date Extra 4 Column: ZB-		8:13
Analyte Co	onc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD		0.148		IS 13C-2,3,7,8-TCDD	55.9	25 - 164	
1,2,3,7,8-PeCDD	ND	0.200	and the second second	13C-1,2,3,7,8-PeCDD	54.8	25 - 181	-
1,2,3,4,7,8-HxCDD	ND	0.337		13C-1,2,3,4,7,8-HxCDD	43.9	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.696		13C-1,2,3,6,7,8-HxCDD	46.0	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.794		13C-1,2,3,7,8,9-HxCDD	41.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.720		13C-1,2,3,4,6,7,8-HpCDD	42.3	23 - 140	
OCDD	0.869		G	13C-OCDD	43.4	17 - 157	
2,3,7,8-TCDF	ND	0:138		13C-2,3,7,8-TCDF	76.5	24 - 169	
1,2,3,7,8-PeCDF	ND	0.212		13C-1,2,3,7,8-PeCDF	61.2	24 - 185	
2,3,4,7,8-PeCDF	ND	0,205		13C-2,3,4,7,8-PeCDF	65.0	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.126		13C-1,2,3,4,7,8-HxCDF	49.8	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.136		13C-1,2,3,6,7,8-HxCDF	49.5	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.0876		13C-2,3,4,6,7,8-HxCDF	47.6	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.129		13C-1,2,3,7,8,9-HxCDF	44.9	29 - 147	and the first form of the properties of
1,2,3,4,6,7,8-HpCDF	ND	0.330		13C-1,2,3,4,6,7,8-HpCDF	43.8	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.146		13C-1,2,3,4,7,8,9-HpCDF	49.1	26 - 138	
OCDE/	ND	0.435		13C-OCDF	44.6	17 - 157	
				CRS 37CI-2,3,7,8-TCDD	82.4	35 - 197	
TOTALS							
Total TCDD	ND	0.148					
Total PeCDD	and the second s	0.294		Value and the second			
Total HxCDD	ND	0.929					
Total HpCDD	ND	1.52	i Tuan a kankin sana				
Total TCDF	ND	0.138					
Total PeCDF	ND	0.452				Service Control of the Control of th	
Total HxCDF	ND	0.159					
Total TIpCDF	and the second s	0.234					

EMPC - Estimated maximum possible concentration

Sample ID: PRI	09CFFB					EPA Me	thod 1613B
Project: L	ierra Solutions, Inc. ower Passiac River Study CSO/SWO 0-Jan-2014 15:35	Sample Data Matrix: Aqueo Sample Size: 9.67 L		Laboratory Data Lab Sample: 1400027-03 QC Batch: B4A0132 Date Analyzed: 29-Jan-14 16:2		red: 11-Jan-2014 ted: 27-Jan-2014 MS Analyst: MAS	8:13
Analyte	Conc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.146	namenament and a second	IS 13C-2,3,7,8-TCDD	54.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.260		13C-1,2,3,7,8-PeCDD	59.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.455		13C-1,2,3,4,7,8-HxCDD	43.2	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.481		13C-1,2,3,6,7,8-HxCDD	44.1	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.521		13C-1,2,3,7,8,9-HxCDD	41.6	32 - 141	
1,2,3,4,6,7,8-HpCD	D ND	1.06		13C-1,2,3,4,6,7,8-HpCDD	40.9	23 - 140	
OCDD	ND	0.699		13C-OCDD	41.9	17 - 157	
2,3,7,8-TCDF	ND	0.137		13C-2,3,7,8-TCDF	75.7	24 - 169	
1,2,3,7,8-PeCDF	ND	0.242		13C-1,2,3,7,8-PeCDF	67.0	24 - 185	
2,3,4,7,8-PeCDF	ND	0.221		13C-2,3,4,7,8-PeCDF	69.5	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.123		13C-1,2,3,4,7,8-HxCDF	49.6	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.133		13C-1,2,3,6,7,8-HxCDF	48.0	26 - 123	
2,3,4,6,7,8-HxCDF	ND /	0.0684		13C-2,3,4,6,7,8-HxCDF	45.8	28 - 136	
1,2,3,7,8,9-HxCDF	MD	0.0973		13C-1,2,3,7,8,9-HxCDF	44.2	29 - 147	
1,2,3,4,6,7,8-HpCD	F ND	0.232		13C-1,2,3,4,6,7,8-HpCDF	41.9	28 - 143	
1,2,3,4,7,8,9-HpCD		0.146		13C-1,2,3,4,7,8,9-HpCDF	48.1	26 - 138	
OCDE/	ND	0.425		13C-OCDF	43.4	17 - 157	
Lisasian en angener en anno en				CRS 37CI-2,3,7,8-TCDD	82.0	35 - 197	
TOTALS							
Total TCDD	ND	0.146					
Total PeCDD	and the second s	where $ heta$ is $4 \cdot 2 \cdot 2$ in the contract of the contract					
Total HxCDD	ND	0.678					
Total HpCDD	ND	1.06		[V] [V]			
Total TCDF	ND	0.137					
Total PeCDF	ND	0.497					
Total HxCDF	ND	0.157					
Total HpCDF		and the second s		: : :			

EMPC - Estimated maximum possible concentration

Sample ID: PR110	CFRB		i ka sa miningan kanan kanan ka manan ka manan ka			innellikak kenanciala kaluminan kanun kanun kanun kanun kaluminan kanun kiki kalibah menen an anan oron ban pekaduan keran k		EPA M	ethod 1613B
Project: Low	ra Solutions, Inc. er Passiac River Study CSO/SWO an-2014 8:45	Sample Matrix Sampl			Laboratory Lab Sample: QC Batch: Date Analyz	1400027-01 B4A0132	Date Received Date Extracted 5 Column: ZB-5M	i: 27-Jan-2014	8:13
Analyte C	conc. (pg/L)	DL	EMPC	Qualifiers	Labele	d Standard	%R	LCL-UCL	Qualifiers
2,3,7,8=TCDD				anne anno anno anno anno anno anno anno	IS 13C-2,3	,7,8-TCDD	78.7	25 - 164	
1,2,3,7,8-PeCDD	ND	0.266		and the second second	13C-1,2	2,3,7,8-PeCDD	74.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.212			13C-1,2	2,3,4,7,8 - HxCDD	55.9	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.405	and the second second		13C-1,2	2,3,6,7,8 - HxCDD	56.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.435			13C-1,2	2,3,7,8,9-HxCDD	52.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND		0.374		13C-1,2	2,3,4,6,7,8-HpCDD	51.2	23 - 140	
OCDD	1.38			G	13C-00	DD	49.6	17 - 157	
2,3,7,8-TCDF	ND	0:111			13C-2,3	7,8-TCDF	93.5	24 - 169	
1,2,3,7,8-PeCDF	ND	0.205			13C-1,2	2,3,7,8-PeCDF	75.2	24 - 185	
2,3,4,7,8-PeCDF	ND	0.194			13C-2,3	1,4,7,8-PeCDF	79.6	21 - 178	
1,2,3,4,7,8-HxCDF	ND		0.243		13C-1,2	2,3,4,7,8-HxCDF	61.8	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.132			13C-1,2	2,3,6,7,8-HxCDF	60.2	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.161			13C-2,3	,4,6,7,8-HxCDF	59.0	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.240			13C-1,2	2,3,7,8,9-HxCDF	56.1	29 - 147	**************************************
1,2,3,4,6,7,8-HpCDF	1.02			G	13C-1,2	2,3,4,6,7,8-HpCDF	53.6	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.282			13C-1,2	2,3,4,7,8,9-HpCDF	57.0	26 - 138	
OCDF	3.73			\mathbf{G}	13C-00	ZDF	51.8	17 - 157	
				Maintenante anno de Constante de	CRS 37CI-2,	3,7,8-TCDD	91.4	35 - 197	
TOTALS									
Total TCDD	0.387								
Total PeCDD	······································	_0.266			0	April 1980 Company	*		
Total HxCDD	ND		0.371		$\sim 800 f$				
Total HpCDD	0.461	and the second s	0.836		U_{CV} V	N.			
Total TCDF	ND	0.205			V/c_{γ}				
Total PeCDF	ND	0.313	energia de la compania del compania del compania de la compania del compania de la compania de la compania del compania de la compania del compania del compania de la compania del compa				en elektrone bilandi.	erie e e e e e e e e e e e e e e e e e e	***
Total HxCDF	— ND		0.381						
Total HpCDF	1.02								

EMPC - Estimated maximum possible concentration

Sample ID: PRICSO	OCLYWW-01C		oversic con a minima com announce de la conscionar archevir ar cas calla se e per el periodog à la grando dest		n (1994)	ik kateroloj jenjej et jet je vita dar dra tikon di den kolen je kryti zamen domoninga, a seze spremenen en en	EPA Mei	hod 1613
Project: Lower	Solutions, Inc. Passiac River Study CSO/SWO 2014 18:10	Sample Data Matrix: Aqueo Sample Size: 9.78 L	us	Laboratory Data Lab Sample: QC Batch: Date Analyzed:	1400326-01 B4E0031 15-May-14 23:54	Date Received: Date Extracted: Column: ZB-5MS	11-May-2014	19:25
Analyte Cor	nc. (pg/L)	DL EMPC	Qualifiers	Labeled Stand	ard	%R	LCL-UCL	Qualifier
2,3,7,8-TCDD	ND	0.0848		IS 13C-2,3,7,8-TC	DD	63.1	25 - 164	
1,2,3,7,8-PeCDD	0.425		8	13C-1,2,3,7,8-I	PeCDD	48.9	25 - 181	
1,2,3,4,7,8-HxCDD	0.914		/ G	13C-1,2,3,4,7,8	-HxCDD	55.8	32 - 141	
1,2,3,6,7,8-HxCDD	2.58			13C-1,2,3,6,7,8	-HxCDD	55.7	28 - 130	
1,2,3,7,8,9-HxCDD	2.01		G	13C-1,2,3,7,8,9	-HxCDD	55.2	32 - 141	
1,2,3,4,6,7,8-HpCDD	81.5			13C-1,2,3,4,6,7	,8-HpCDD	52.6	23 - 140	
OCDD	1060			13C-0CDD		53.4	17 - 157	
2,3,7,8-TCDF	ND	0.244		13C-2,3,7,8-TC	DF	65.0	24 - 169	
1,2,3,7,8-PeCDF	0.304		G	13C-1,2,3,7,8-F	eCDF	53.0	24 - 185	
2,3,4,7,8-PeCDF	0.850		G	13C-2,3,4,7,8-F	eCDF	53.2	21 - 178	4.11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.
1,2,3,4,7,8-HxCDF	1.80		G	13C-1,2,3,4,7,8	-HxCDF	55.0	26 - 152	
1,2,3,6,7,8-HxCDF	1.81		G	13C-1,2,3,6,7,8	-HxCDF	51.5	26 - 123	and the second of the second of
2,3,4,6,7,8-HxCDF	1.75		G	13C-2,3,4,6,7,8	-HxCDF	55.9	28 - 136	
1,2,3,7,8,9-HxCDF	NB	0.131		13C-1,2,3,7,8,9	The second secon	58.9	29 - 147	
1,2,3,4,6,7,8-HpCDF	29.1			13C-1,2,3,4,6,7		58.7	28 - 143	
1,2,3,4,7,8,9-HpCDF	2.05		G	13C-1,2,3,4,7,8	market and the second contract of the contract	58.6	26 - 138	
OCDF /	53.7			13C-OCDF		52.3	17 - 157	
		Haddeley Commence of the Comme		CRS 37CI-2,3,7,8-T0	CDD	83.8	35 - 197	
TOTALS								HEAVEN THE PROPERTY OF THE PARTY OF THE PART
Total TCDD	0.393	0.726						
Total PeCDD	inisiri Arif A muutuusia saasaa saasaa saasaa saasaa saasaa saasaa			(1)X 116	Service Agent Principle Service State Service		and an area of a second	
Total HxCDD	20.2			Alapla				
Total HpCDD	169	and the second s		<i>.</i>				
Total TCDF	2.92	4.60						
Total PeCDF	13.6	13.7						
Total HxCDF	-31.0							
Total-HpCDF	60.4					:		

Sample ID: PR1WV	WDUP-01C		erretere (et a animalo procede errete e procede de la completa por a comunicación de la comunicación de l			EPA Me	thod 16131
Project: Lowe	a Solutions, Inc. r Passiac River Study CSO/SWO or-2014 18:10	Sample Data Matrix: Aqueous Sample Size: 9.67 L		Laboratory Data Lab Sample: 1400326-02 QC Batch: B4E0031 Date Analyzed: 15-May-14 23:		ed: 02-May-2014 ed: 11-May-2014 5MS Analyst: MA	19:25
Analyte Co	onc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7.8-TCDD	NP	0.0530	·····	IS 13C-2,3,7,8-TCDD	65.4	25 - 164	
1,2,3,7,8-PeCDD	0.262		_G	13C+1,2,3,7,8-PeCDD	51.7	25 - 181	
1,2,3,4,7,8-HxCDD	0.681		/ G	13C-1,2,3,4,7,8-HxCDD	58.5	32 - 141	
1,2,3,6,7,8-HxCDD	1.81		G	13C-1,2,3,6,7,8-HxCDD	59.6	28 - 130	
1,2,3,7,8,9-HxCDD	1.30		G	13C-1,2,3,7,8,9-HxCDD	58.2	32 - 141	
1,2,3,4,6,7,8-HpCDD	71.1			13C-1,2,3,4,6,7,8-HpCDD	54.1	23 - 140	
OCDD	821			13C-OCDD	53.6	17 - 157	
2,3,7,8-TCDF	ND	0.133		13C-2,3,7,8-TCDF	64.0	24 - 169	
1,2,3,7,8-PeCDF	ND >	0.157		13C-1,2,3,7,8-PeCDF	55.3	24 - 185	
2,3,4,7,8-PeCDF	0.438		G	13C-2,3,4,7,8-PeCDF	55.6	21 - 178	
1,2,3,4,7,8-HxCDF	1.34		G	13C-1,2,3,4,7,8-HxCDF	55.1	26 - 152	
1,2,3,6,7,8-HxCDF	1.32		G	13C-1,2,3,6,7,8-HxCDF	53,4	26 - 123	
2,3,4,6,7,8-HxCDF	1.09		G	13C-2,3,4,6,7,8-HxCDF	57.8	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0906		13C-1,2,3,7,8,9-HxCDF	59.5	29 - 147	120000000000000000000000000000000000000
1,2,3,4,6,7,8-HpCDF	20.2			13C-1,2,3,4,6,7,8-HpCDF	58.2	28 - 143	
1,2,3,4,7,8,9-HpCDF	1.47		G	13C-1,2,3,4,7,8,9-HpCDF	60.1	26 - 138	The state of the s
OCDE/	38.0			13C-OCDF	52.1	17 - 157	
		t tigiti ja annom katais aan metakais aan saa kan aan aan aan aan aan aan aan aan a		CRS 37C1-2,3,7,8-TCDD	88.0	35 - 197	
TOTALS							
Total TCDD	ND	0.272		cut			
-Total PeCDD	4.75			She alsolin			
Total HxCDD	14.2			160			
Total HpCDD	144	and the state of t	er kan a san a san a san			The second secon	
Total TCDF	1.33	2.17					
Total PeCDF	7.46	7.62					
Total HxCDF	- 20.7						
Total HpCDF DL - Sample specife esti	43.1			LCL-UCL- Lower control limit - upper control limi			

Sample ID: PR1CS	SOCLYHP-01C	pompropojske pomorimanom a narace a koje verio posito vintikačný čepný vinima taktické kolejíce	yyysysteminen jakoyysisty enimenin jayasta tahun t		renerativo de la la companya de la c	ления на принципалния по принципалния на принципалния на принципалния на принципалния на принципалния на принц Принципалния на принципалния на принципалния на принципалния на принципалния на принципалния на принципалния н	ARAMANIAN PARA PARA PARA PARA PARA PARA PARA PA	EPA Me	thod 1613B
Project: Lowe	a Solutions, Inc. er Passiac River Study CSO/SWO pr-2014 18:10	Sample Data Matrix: Sample Size: % Solids:	Solid 19.9 g 50.2		Laboratory Data Lab Sample: QC Batch: Date Analyzed:		Date Received: Date Extracted: 19 Column: ZB-5M 29 Column: SP-233	07-May-201 S Analyst: MA	1 13:42 S
Analyte C	onc. (pg/g)	DL EMP	C	Qualifiers	Labeled Star	ıdard	%R	LCL-UCL	Qualifiers
-2.3.7.8-TCDD				I	S 13C-2,3,7,8-	rcdd	71.1	25 - 164	
1,2,3,7,8-PeCDD	4.56				13C-1,2,3,7,8	-PeCDD	71.1	25 - 181	
1,2,3,4,7,8-HxCDD	9.01				13C-1,2,3,4,7	,8-HxCDD	68.3	32 - 141	
1,2,3,6,7,8-HxCDD	24.4				13C-1,2,3,6,7	,8-HxCDD	75.3	28 - 130	
1,2,3,7,8,9-HxCDD	17.5				13C-1,2,3,7,8	,9-HxCDD	73.0	32 - 141	
1,2,3,4,6,7,8-HpCDD	746				13C-1,2,3,4,6	,7,8-HpCDD	68.3	23 - 140	
OCDD	12000			D	13C-OCDD		67.1	17 - 157	D
2,3,7,8-TCDF	3.85				13C-2,3,7,8-7	ГCDF	64.6	24 - 169	
1,2,3,7,8-PeCDF	3.53				13C-1,2,3,7,8	-PeCDF	78.5	24 - 185	
2,3,4,7,8-PeCDF	4.77				13C-2,3,4,7,8	-PeCDF	72.5	21 - 178	
1,2,3,4,7,8-HxCDF	14.9				13C-1,2,3,4,7	,8-HxCDF	79.6	26 - 152	
1,2,3,6,7,8-HxCDF	13.9				13C-1,2,3,6,7	',8-HxCDF	73.3	26 - 123	and the second of the second
2,3,4,6,7,8-HxCDF	9.96				13C-2,3,4,6,7	.8-HxCDF	74.3	28 - 136	
1,2,3,7,8,9-HxCDF	שא	0.267			13C-1,2,3,7,8	.9-HxCDF	77.7	29 - 147	
1,2,3,4,6,7,8-HpCDE	253				13C-1,2,3,4,6	,7,8-HpCDF	74.8	28 - 143	
1,2,3,4,7,8,9-HpCDF	13.8				13C-1,2,3,4,7	armen a service and a service for a fine of the contract of	81.0	26 - 138	
OCDF/	488				13C-OCDF		77.9	17 - 157	
		der formyte before former for de son de s		······	CRS 37CI-2,3,7,8-	TCDD	71.7	35 - 197	
TOTALS									
Total TCDD	18.1	19:	17.8						
Total PeCDD	461			Mingapolic Commence					
Total HxCDD	206		The second secon		ΔV	. \\\\			
Total HpCDD	1740	and the second s							The second of the second
Total TCDF	85.5	88.2							
Total PeCDF	174								
Total HxCDF	299								
Total HpCDF	59.6	***************************************		Application of the Control of the Co					
DI Cample enseife an	timated detection limit			1.0	L-UCL- Lower control l	mit managasates Hast			

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight.

Sample ID: PRIHPDUP-01C				EPA Mei	hod 1613B
Client Data Name: Tierra Solutions, Inc. Project: Lower Passiac River Study CSO/SWO Date Collected: 30-Apr-2014 18:10	Sample Data Matrix: Solid Sample Size: 19.2 g % Solids: 52.0		Date Received: Date Extracted: Column: ZB-5M: Column: SP-233	07-May-2014 S Analyst: MAS	13:42
Analyte Conc. (pg/g)	DL EMPC Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD ND 1,2,3,7,8-PeCDD 4.69 1,2,3,4,7,8-HxCDD 9.24 1,2,3,6,7,8-HxCDD 25.0 1,2,3,4,6,7,8-HxCDD 21.0 1,2,3,4,6,7,8-HpCDD 818 OCDD 11600 2,3,7,8-TCDF 3.60 1,2,3,7,8-PeCDF 3.22 2,3,4,7,8-PeCDF 4.21 1,2,3,4,7,8-HxCDF 14.4 1,2,3,6,7,8-HxCDF 14.2 2,3,4,6,7,8-HxCDF 10.5 1,2,3,7,8,9-HxCDF ND 1,2,3,4,6,7,8-HpCDF 247 1,2,3,4,7,8,9-HpCDF 14.4	D D	IS 13C-2,3,7,8-TCDD 13C-1,2,3,4,7,8-PeCDD 13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HxCDD 13C-0CDD 13C-0CDD 13C-2,3,7,8-TCDF 13C-1,2,3,7,8-PeCDF 13C-1,2,3,4,7,8-PeCDF 13C-1,2,3,4,7,8-HxCDF 13C-1,2,3,4,7,8-HxCDF 13C-1,2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HyCDF 13C-1,2,3,4,6,7,8-HyCDF	80.5 83.9 77.0 78.4 78.0 71.7 79.8 72.2 97.5 87.8 94.8 82.1 77.5 79.7 80.8 84.6	25 - 164 25 - 181 32 - 141 28 - 130 32 - 141 23 - 140 17 - 157 24 - 169 24 - 185 21 - 178 26 - 152 26 - 123 28 - 136 29 - 147 28 - 143 26 - 138	D
OCDE 469		13C-OCDF CRS 37CI-2,3,7,8-TCDD	83.5 83.0	17 - 157 35 - 197	
TOTALS					
Total TCDD 14.1 Total PeCDD 43.1 Total HxCDD 207 Total HpCDD 1920 Total TCDF 75.6	78.0	Enfaction			
Total PeCDF 152 Total HxCDF 287 Total HpCDF 516 DL - Sample specific estimated detection limit	153	LCL-UCL- Lower control limit - upper control limit			

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight.

Sample ID: PRIC			reimeniamourepianemaiisininininysyyspyspyspysinininineryn Winissi				MARINE TO THE TOTAL PROPERTY OF THE PARTY OF		
Project: Low	rra Solutions, Inc. ver Passiac River Study CSO/SWO Apr-2014 18:10	Sample Da Matrix: Sample S	Aqueous		Lab Sample: QC Batch: Date Analyzed:	1400327-01 B4E0049 19-May-14 17:11	Date Received: Date Extracted: Column: ZB-5M	15-May-2014	8:44
Analyte (Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Stand	lard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.123			IS 13C-2,3,7,8-T	CDD	58.6	25 - 164	
1,2,3,7,8-PeCDD	ND		0.187		13C-1,2,3,7,8-	PeCDD	42.7	25 - 181	
1,2,3,4,7,8-HxCDD	0.575			/ G	13C-1,2,3,4,7,	8-HxCDD	45.7	32 - 141	
1,2,3,6,7,8-HxCDD	1.42			G	13C-1,2,3,6,7,	8-HxCDD	48.1	28 - 130	and and and
1,2,3,7,8,9-HxCDD	1.04			G	13C-1,2,3,7,8,	9-HxCDD	45.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	31.3	1 14			13C-1,2,3,4,6,	7,8-HpCDD	42.2	23 - 140	
OCDD	226				13C-OCDD		40.8	17 - 157	
2,3,7,8-TCDF	0.0775			G	13C-2,3,7,8-T	CDF	62.2	24 - 169	
1,2,3,7,8-PeCDF	0.131			G	13C-1,2,3,7,8-	and the second control of the second control	47.6	24 - 185	
2,3,4,7,8-PeCDF	ND		0.238		13C-2,3,4,7,8-	the second of th	46.9	21 - 178	
1,2,3,4,7,8-HxCDF	0.976			G	13C-1,2,3,4,7,	8-HxCDF	45.9	26 - 152	
1,2,3,6,7,8-HxCDF	1.07			G	13C-1,2,3,6,7,	8-HxCDF	43.9	26 - 123	
2,3,4,6,7,8-HxCDF	0.924			G	13C-2,3,4,6,7,	Access to the State of the Control of the Control	45.7	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.244			13C-1,2,3,7,8,	Control of the Contro	48.0	29 - 147	The brook of the fact of the first the
1,2,3,4,6,7,8-HpCDF>	15.3				13C-1,2,3,4,6,	7.8-HpCDF	46.8	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	Secure Security Security Security	1.22	Committee of the commit	13C-1,2,3,4,7,	and a second control of the second control o	47.1	26 - 138	
OCDF /	26.8				13C-OCDF		40.5	17 - 157	
. Alaeniniaa					CRS 37CI-2,3,7,8-1	CDD	96.7	35 - 197	
TOTALS									
Total TCDD	ND	0.134							
-Total-PeCDD	0.791		0.978			and the many the second of the	According to the control of the cont		
Total HxCDD	891		9.23	and the second s	[CM1 16				
Total HpCDD	57.7	and the second s	and the second second second second second second second		V',\\%"\				
Total TCDF	0.387		0.668		1				
Total PeCDF	3.16	Alleria Santa	4.71		Language to the				
Total HxCDF	164								
Total-HpCDF	30.9 stimated detection limit		32.2						

Sample ID: PR1HD	DUP-01C							EPA Met	hod 1613B
Project: Lowe	a Solutions, Inc. r Passiac River Study CSO/SWO pr-2014 18:10	Sample Data Matrix: Aqueous Sample Size: 10.0 L		Lab QC	oratory Data Sample: Batch: e Analyzed:	1400327-02 B4E0049 19-May-14 16:2	Date Received: Date Extracted: 2 Column: ZB-5MS	15-May-2014	8:44
Analyte Co	onc. (pg/L)	DL EMPC	Qualifiers		Labeled Stan	dard	%R	LCL-UCL	Qualifiers
2.3.7.8-TCDD	ND	0.168		IS	13C-2,3,7,8-T	CDD	65.5	25 - 164	
1,2,3,7,8-PeCDD	ND	0.104			13C-1,2,3,7,8	-PeCDD	51.0	25 - 181	
1,2,3,4,7,8-HxCDD	0.448		/ G		13C-1,2,3,4,7	8-HxCDD	53.1	32 - 141	
1,2,3,6,7,8-HxCDD	1.18		G		13C-1,2,3,6,7	.8-HxCDD	56.5	28 - 130	
1,2,3,7,8,9-HxCDD	0.834		\mathbf{G}		13C-1,2,3,7,8	9-HxCDD	54.4	32 - 141	
1,2,3,4,6,7,8-HpCDD	29.3				13C-1,2,3,4,6	7,8-HpCDD	49.2	23 - 140	200000000000000000000000000000000000000
OCDD	269				13C-OCDD		49.3	17 - 157	
2,3,7,8-TCDF	0.0948		G		13C-2,3,7,8-T	CDF	68.4	24 - 169	
1,2,3,7,8-PeCDF	ND	0.235			13C-1,2,3,7,8	-PeCDF	55.3	24 - 185	
2,3,4,7,8-PeCDF	ND	0.200			13C-2,3,4,7,8	and the second section of the second	56.7	21 - 178	and the state of the state of
1,2,3,4,7,8-HxCDF	0.893		\mathbf{G}		13C-1,2,3,4,7	8-HxCDF	56.2	26 - 152	
1,2,3,6,7,8-HxCDF	0.885		G		13C-1,2,3,6,7	the contract of the contract o	51.3	26 - 123	
2,3,4,6,7,8-HxCDF	0.793		G		13C-2,3,4,6,7		55.4	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.101			13C-1,2,3,7,8		57.4	29 - 147	and the second of the second
1,2,3,4,6,7,8-HpCDF	13.0				13C-1,2,3,4,6	7.8-HpCDF	55.5	28 - 143	Banasa (
1,2,3,4,7,8,9-HpCDF	1.01		G		13C-1,2,3,4,7	and the state of t	56.2	26 - 138	
OCDF/	21				13C-OCDF		48.3	17 - 157	
				CRS	37CI-2,3,7,8-7	CDD	96.9	35 - 197	
TOTALS				1					
Total TCDD	ND	0.0684							
Total PeCDD	and the second s								
Total HxCDD	8.04		and the second s	/,	11/				
Total HpCDD	55.5	and the second s		V					
Total TCDF	0.306	0.686		1 ×					
Total PeCDF	2.36	3.91							****
Total HxCDF	- 14.0	14.1							
Fetal HpCDF	37.4				**				
DL - Sample specife est	imuted detection limit			TCLIC	I . I ower control li	mit - upper control limit			

EMPC - Estimated maximum possible concentration

Sample ID: PRICS	OCLYLP-01C						EPA M	ethod 16131
Project: Lower	Solutions, Inc. r Passiac River Study CSO/SWO ay-2014 15:05	Sample Data Matrix: Filter Sample Size: 0.0773 g		Laboratory I Lab Sample: QC Batch: Date Analyze	1400337-01 B4E0032	Date Rece Date Extra 6 Column: ZI	of the result of the same of the same will be a second of	4 14:00
Analyte Co	one. (pg/g)	DL EMPC	Qualifiers	Labeled	Standard	%R	LCL-UCL	Qualifiers
2.3.7.8-FCDD		is a superior of the second contract of the	ani periodo de como contrato de destrato de consecuencia de consecuencia de consecuencia de consecuencia de co	IS 13C-2,3,	7,8-TCDD	86.5	25 - 164	
1,2,3,7,8-PeCDD	24.4		∠ G	13C-1,2,	3,7,8-PeCDD	73.2	25 - 181	
1,2,3,4,7,8-HxCDD	47.7		g G	13C-1,2,	3,4,7,8-HxCDD	84.5	32 - 141	
1,2,3,6,7,8-HxCDD	135		G	13C-1,2,	3,6,7,8-HxCDD	87.5	28 - 130	
1,2,3,7,8,9-HxCDD	105		G	13C-1,2	3,7,8,9-HxCDD	84.8	32 - 141	4
1,2,3,4,6,7,8-HpCDD	3750			13C-1,2,	3,4,6,7,8-HpCDD	81.5	23 - 140	
OCDD	45500			13C-0C	the first the second of the se	82.3	17 - 157	
2,3,7,8-TCDF	18.9		G	13C-2,3.	7,8-TCDF	86.8	24 - 169	
1,2,3,7,8-PeCDF	12.6		G		3.7,8-PeCDF	80.5	24 - 185	
2,3,4,7,8-PeCDF	43.6		G		4,7,8-PeCDF	74.7	21 - 178	
1,2,3,4,7,8-HxCDF	80.8		G		3,4,7,8-HxCDF	83.1	26 - 152	
1,2,3,6,7,8-HxCDF	92.3		G		3,6,7,8-HxCDF	77.6	26 - 123	
2,3.4,6,7,8-HxCDF	95.9		G		4,6,7,8-HxCDF	82.4	28 - 136	
1,2,3,7,8,9-HxCDF		7.2			3,7,8,9-HxCDF	88.4	29 - 147	
1.2,3,4,6,7,8-HpCDF	1760				3,4,6,7,8-H _P CDF	90.8	28 - 143	
1.2,3,4,7.8,9-HpCDF	105		G		3,4,7,8,9-HpCDF	90.5	26 - 138	
OCDE	3280			13C-0C	The State of the Control of the Cont	80.8	17 - 157	
			in and a few reserves in the contract of the contract of		7.8-TCDD	86.6	35 - 197	
TOTALS								
Total TCDD	17.5	26,4						
Total PeCDD	anning (Co.)	inanasianasianinasianinasianinasianinasianinasianinasianinasianinasianinasianinasianinasianinasianinasianinasi						
Total HxCDD	903	946						
Total HpCDD	7410	and the second s		lizak i	T.			
Total TCDF	183			[18 N \ \				
Total PcCDF	695	718						
Total HxCDF	1790							
Total HipCDF	where 3680 , we are the second construction and the second constructions are the second construction and the second construction and the second construction are the second construction are the second construction are the second construction and the second construction are the se		and the same of th					
	mated detection limit			THE PERSON A	trol limit - unper control limit			AND DESCRIPTION OF THE PROPERTY OF THE PROPERT

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight.

Sample ID: PRILPDUP-O1C					EPA Method 1613
Client Data Name: Tierra Solutions, Inc. Project: Lower Passiac River Study CS0 Date Collected: 05-May-2014 17:40	Sample Data Matrix: Filter Sample Size: 0.0808 g		Laboratory Data Lab Sample: 1400337-02 QC Batch: B4E0032 Date Analyzed: 15-May-14 21:	Date Rece Date Extra 27 Column: ZF	
Analyte Conc. (pg/g)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL Qualifier
2,3,7,8-TCDD ND	6.0		IS 13C-2,3,7,8-TCDD	85.2	25 - 164
1,2,3,7,8-PeCDD 59.3			13C-1,2,3,7,8-PeCDD	76.2	25 - 181
1.2,3,4,7,8-HxCDD 91.2		G	13C-1,2,3,4,7,8-HxCDD	87.5	32 - 141
1,2,3,6,7,8-HxCDD 219		G	13C-1,2,3,6,7,8-HxCDD	91.1	28 - 130
1,2,3,7,8,9-HxCDD 238		G	13C-1,2,3,7,8,9-HxCDD	88.5	32 - 141
1,2,3,4,6,7,8-HpCDD 7400			13C-1,2,3,4,6,7,8-HpCDD	85.0	23 - 140
OCDD 109000			13C-OCDD	85.3	17 - 157
2,3,7,8-TCDF ND	20.6		13C-2,3,7,8-1CDF	85.0	24 - 169
1.2.3.7.8-PeCDF 18.3		G	13C-1,2,3,7,8-PeCDF	80.3	24 - 185
2,3,4,7,8-PeCDF 56.9		G	13C-2,3,4,7,8-PeCDF	79.0	21 - 178
1,2,3,4,7,8-HxCDF 93.4		G	13C-1,2,3,4,7,8-HxCDF	87.9	26 - 152
1,2,3,6,7,8-HxCDF 116		G	13C-1,2,3,6,7,8-HxCDF	81.7	26 - 123
2,3,4,6,7,8-HxCDF 118		G	13C-2,3,4,6,7,8-HxCDF	86.7	28-136
1,2,3,7,8,9-HxCDF /19,4		G	13C-1,2,3,7,8,9-HxCDF	94.1	29 - 147
1,2,3,4,6,7,8-HpCDF 2230			13C-1,2,3,4,6,7,8-HpCDF	-90.7	28 - 143
1,2,3,4,7,8,9-HpCDF 123		G	13C-1,2,3,4,7,8,9-HpCDF	96.8	26 - 138
OCDE 4070			13C-OCDF	83.5	17 - 157
			CRS 37CI-2,3,7,8-TCDD	87.7	35 - 197
TOTALS					
Total TCDD 52.9	68.9		Annual and a second control of the c		Name of the Control o
Total PeCDD 229	$\mathbf{x}_{i_1,i_2,\dots,i_{i_1},\dots,i_{i_2}}$				
Total HxCDD 1920					
Total HpCDD 17700					
Total TCDF 236	322				
Total PeCDF 868					8-8-7-
Total HxCDF 2150					
Tetal-HpCDF					
DL - Samole specific estimated detection limit			LCL-UCL- Lower control limit - upper control limit		

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight. The sample size is reported in wet weight.

Sample ID: PF	R105LPEB					EPA Mei	hod 1613
Project:	Tierra Solutions, Inc. Lower Passiac River Study CSO/SWO 05-May-2014 16:30	Sample Data Matrix: Filter Sample Size: 1.00 g		Laboratory Data Lab Sample: 1400337-03 QC Batch: B4E0032 Date Analyzed: 15-May-14 20:	Date Received: Date Extracted: 38 Column: ZB-5M	12-May-2014	14:00
Analyte	Conc. (pg/g)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-FCDD	ND	0.786		IS 13C-2,3,7,8-TCDD	79.4	25 - 164	
1,2,3,7,8-PeCDD	ND	0.867		13C-1,2,3,7,8-PeCDD	73.0	25 - 181	
1,2,3,4,7,8-HxCD	D ND	0.746		13C-1,2,3,4,7,8-HxCDD	85.0	32 - 141	
1,2,3,6,7,8-HxCD	D ND	0.792		13C-1,2,3,6,7,8-HxCDD	92.7	28 - 130	
1,2,3,7,8,9-HxCD	D ND	0.800		13C-1,2,3,7,8,9-HxCDD	89.2	32 - 141	
1,2,3,4,6,7,8-HpC	DD ND	1.14		13C-1,2,3,4,6,7,8-HpCDD	83.7	23 - 140	The same and the second
OCDD	ND	3.66		13C-OCDD	84.1	17 - 157	
2,3,7,8-TCDF	ND	0.678		13C-2,3,7,8-TCDF	75.8	24 - 169	and the second s
1,2,3,7,8-PeCDF	ND /	0.739		13C-1,2,3,7,8-PeCDF	75.3	24 - 185	
2,3,4,7,8-PeCDF	ND	0.503		13C-2,3,4,7,8-PeCDF	74.4	21 - 178	See Cheese Chair Peop Agents
1,2,3,4,7,8-HxCD	F ND	0.781		13C-1,2,3,4,7,8-HxCDF	85.2	26 - 152	
1,2,3,6,7,8-HxCD	F ND	0.219		13C-1,2,3,6,7,8-HxCDF	82.5	26 - 123	and the second s
2,3,4,6,7,8-HxCD	F ND	0.227		13C-2,3,4,6,7,8-HxCDF	85.3	28 - 136	
1,2,3,7,8,9-HxCD		0.321	elikuse saa punen eesti liinuseesi	13C-1,2,3,7,8,9-HxCDF	91.7	29 - 147	
1,2,3,4,6,7,8-Hp@	DF ND	0.524		13C-1,2,3,4,6,7,8-HpCDF	89.9	28 - 143	
1,2,3,4,7,8,9-HpC	DF ND	0.272		13C-1,2,3,4,7,8,9-HpCDF	93.7	26 - 138	
OCDF	ND	1.05		13C-OCDF	81.5	17 - 157	
				CRS 37CI-2,3,7,8-TCDD	84.8	35 - 197	
TOTALS							***************************************
Total TCDD	ND	0.786					
Total PeCDD		oriente de 20 de constitución de la constitución de					
Total HxCDD	ND	1.29		1 / M/ 1/N/			
Total HpCDD	ND	2.61		(X, 1/2, 1)			
Total TCDF	ND	0.678		7/			
Total PeCDF	ND	0.751	are the first of the control of the				
Total HxCDE	ND	0.857					
Total HpCDF	ND crifc estimated detection limit	0,554		LCL-UCL- Lower control limit - upper control limit			

EMPC - Estimated maximum possible concentration

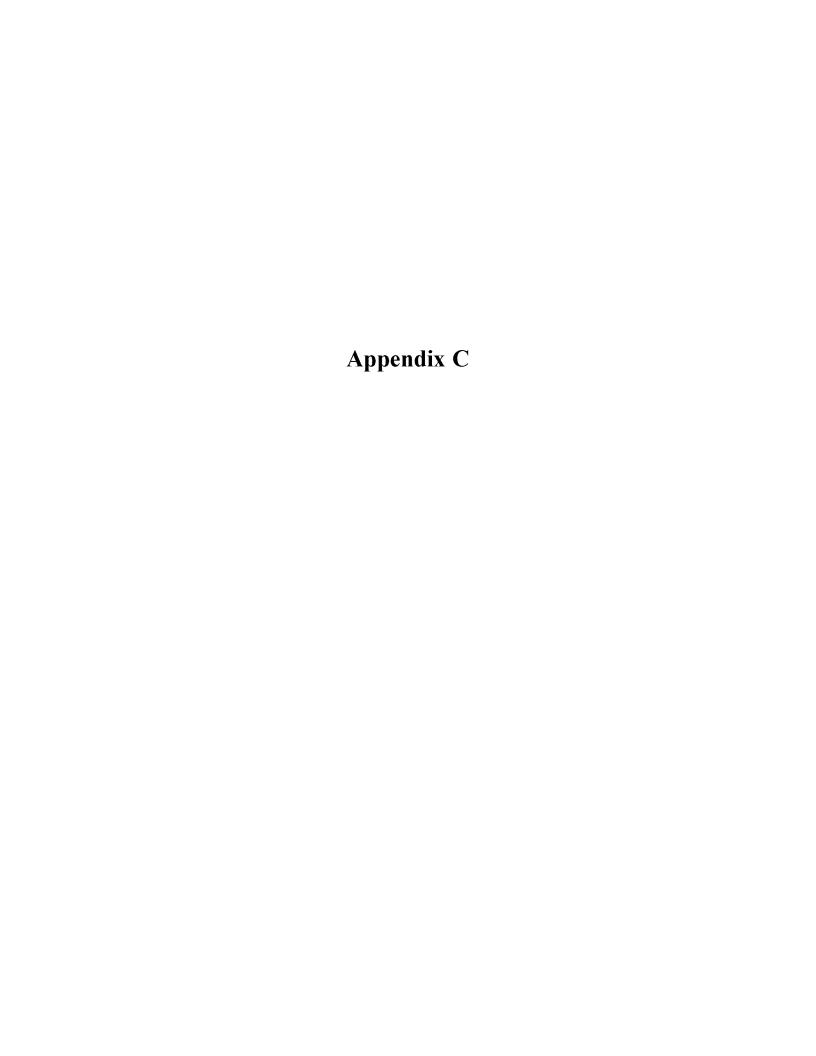
LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight.

Sample ID: PRICS	DCLYLD-01C							EPA Me	thod 16131
Project: Lower	Solutions, Inc. Passiac River Study CSO/SWO sy-2014 15:05	Sample Data Matrix: Sample Size	Aqueous 9.90 L	Lal QC	boratory Data o Sample: Batch: te Analyzed:	1400338-01 B4E0068 24-May-14 13:30	Date Received: Date Extracted: Column: ZB-5M	20-May-2014	9:45
Analyte Co	nc. (pg/L)	DU	PC Qualifier	s I	Labeled Stanc	lard	%R	LCL-UCL	Qualifiers
2,3:7:8×TCDD		0.173		IS	13C-2,3,7,8-T	ÇDD	55.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.285			13C-1,2,3,7,8-	PeCDD	46.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.510			13C-1,2,3,4,7,	8-HxCDD	36.4	32 - 141	
1,2,3,6,7,8-HxCDD	0.769		G		13C-1,2,3,6,7,	8-HxCDD	39.8	28 - 130	
1,2,3,7,8,9-HxCDD	NO.	0.836			13C-1,2,3,7,8;	9-HxCDD	37.0	32 - 141	
1,2,3,4,6,7,8-HpCDD	13.0	and the second second			13C-1,2,3,4,6,	7.8-H _P CDD	33.0	23 - 140	
OCDD	74.9				13C-OCDD		36.8	17 - 157	
2,3,7,8-TCDF	ND	_0.179			13C-2,3,7,8-Te	CDF	60.2	24 - 169	
1,2,3,7,8-PeCDF	ND	0.281			13C-1,2,3,7,8-	PcCDF	54.8	24 - 185	
2,3,4,7,8-PeCDF	ND	0.278			13C-2,3,4,7,8-	PeCDF	53.2	21 - 178	
1,2,3,4,7,8-HxCDF	ND	- 7, 94, 78, 70,	532		13C-1,2,3,4,7,	3-HxCDF	47.3	26 - 152	
1,2,3,6,7,8-HxCDF	0.560		G		13C-1,2,3,6,7,	8-HxCDF	38.4	26 - 123	
2,3,4,6,7,8-HxCDF	0.402		G		13C-2,3,4,6,7,	3-HxCDF	39,3	28 - 136	13.5
1,2,3,7,8,9-HxCDF	ND	0.0982			13C-1,2,3,7,8,9)-HxCDF	40.4	29 - 147	
1,2,3,4,6,7,8-HpCDF	5.81				13C-1,2,3,4,6,	7,8-HpCDF	35.6	28 - 143	and the second
1,2,3,4,7,8,9-HpCDF	ND	0.:	574		13C-1,2,3,4,7,1	3,9-HpCDF	38.2	26 - 138	
QCDF					13C-OCDF		36.7	17 - 157	987 1788
				CRS	37CI-2.3,7,8-T	CDD	94.6	35 - 197	
TOTALS									
Total TCDD	ND	0.173							
Total PeCDD		0.413		-					
Total HxCDD	3.00	4.	08						
Total HpCDD	26.2	the second secon	and the second s		\$150	- NA 			
Total TCDF	ND	-0.205					400000000000000000000000000000000000000		
Total PeCDF	1.45	1.	63						
Total HxCDF	6.19	6.	72					right of the same	
Total HpCDF	nated detection limit		Paradigram proposition in the contract of th	(Resetts					

Sample ID: PRILD	DUP-01C					EPA Mei	hod 16131
Project: Lowe	n Solutions, Inc. r Passiac River Study CSO/SWO ay-2014 17:40	Sample Data Matrix: Aqueous Sample Size: 9.99 L		Laboratory Data Lab Sample: 1400338-02 QC Batch: B4E0068 Date Analyzed: 24-May-14 02:4	Date Receive Date Extract 14 Column: ZB-	***************************************	9:45
Analyte Co	one. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8=TCDD	anno en 143, actorio en	0.232	and a second	IS 13C-2,3,7,8-TCDD	51,9	25 - 164	
1,2,3,7,8-PeCDD	ND	0.307		13C-1,2,3,7,8-PeCDD	47.8	25 - 181	
1,2,3,4,7,8-HxCDD	W	0.395		13C-1,2,3,4,7,8-HxCDD	42.2	32 - 141	
1,2,3,6,7,8-HxCDD	0.652		G	13C-1,2,3,6,7,8-HxCDD	45.0	28 - 130	
1,2,3,7,8,9-HxCDD	0.419		G	13C-1,2,3,7,8,9-HxCDD	43.0	32 - 141	
1,2,3,4,6,7,8-HpCDD	10.4			13C-1,2,3,4,6,7,8-HpCDD	38.8	23 - 140	
OCDD	72.8			13C-OCDD	45.0	17 - 157	
2.3.7.8-TCDF	ND	0.129		13C-2,3,7,8-TCDF	65.2	24 - 169	
1.2,3,7,8-PeCDF	ND	0.220		13C-1,2,3,7,8-PeCDF	69.2	24 - 185	
2,3,4,7,8-PeCDF	ND	0.247		13C-2,3,4,7,8-PeCDF	68.5	21 - 178	
1,2,3,4,7,8-HxCDF	0.412		G	13C-1,2,3,4,7,8-HxCDF	60.8	26 - 152	
1.2,3.6.7.8-HxCDF	ND	0.422		13C-1.2.3.6.7.8-HxCDF	44.8	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.329		13C-2,3,4,6,7,8-HxCDF	44.2	28 - 136	
1,2,3,7,8,9-HxCDF		0.159		13C-1,2,3,7,8,9-HxCDF	49.7	29 - 147	
1,2,3,4,6,7,8-HpCDF	4.14			13C-1.2.3.4.6.7.8-HpCDF	42.0	28 - 143	
1,2,3,4,7,8,9 <u>-</u> 14pCDF	0.548		G	13C-1,2,3,4,7,8,9-HpCDF	48.7	26 - 138	
OCDE /	6.64			13C-OCDF	44.8	17 - 157	
A PATA				CRS 37CI-2,3,7,8-TCDD	87.6	35 - 197	
TOTALS							
Total TCDD	ND (anne en					
Fotal PeCDD	where 0.318 is the second contract of the second						
Total FlxCDD	3.64			L EMILIO			
Total HpCDD	22.3	and the state of t					
Total TCDF		234					
Total PeCDF	0.551	1.00					
Total HxCDF	-340	4.57					
Total HpCDF	anna ang Karto Beranda sa ana ana ana ang ang ang ang ang ang an						
DL - Sample specific esti	mated detection limit			LCL-UCL- Lower control limit - upper control limit			

Sample ID: PR	105LDEB					EPA Method 161
Project:	Tierra Solutions, Inc. Lower Passiac River Study CSO/SWO 05-May-2014 16:30	Sample Data Matrix: Aqueous Sample Size: 9.94 L		Laboratory Data Lab Sample: 1400338-03 QC Batch: B4E0068 Date Analyzed: 24-May-14 0	Date Received: Date Extracted: 1:55 Column: ZB-5M	20-May-2014 9:45
Analyte	Conc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL Qualific
2.3,7,8-TCDD	ND	0.149	and the second s	IS 13C-2,3,7,8-TCDD	77.2	25 - 164
1,2,3,7,8-PeCDD	ND	0.126		13C-1,2,3,7,8-PeCDD	75.4	25 - 181
1,2,3,4,7,8-HxCDE) ND	0.185		13C-1,2,3,4,7,8-HxCDD	65.1	32 - 141
1,2,3,6,7,8-HxCDE	ND	0.185		13C-1,2,3,6,7,8-HxCDD	67.2	28 - 130
1,2,3,7,8,9-HxCDD) ND	0.208		13C-1,2,3,7,8,9-HxCDD	63.0	32 - 141
1,2,3,4,6,7,8-HpCE	DD ND	0.424		13C-1,2,3,4,6,7,8-HpCDD	54.5	23 - 140
OCDD	ND	0.486		13C-OCDD	61.0	17 - 157
2,3,7,8-TCDF	ND	0.103		13C-2,3,7,8-TCDF	90.1	24 - 169
1,2,3,7,8-PeCDF	ND /	~ 0.108		13C-1,2,3,7,8-PeCDF	105	24 - 185
2,3,4,7,8-PeCDF	ND	0.114		13C-2,3,4,7,8-PeCDF	104	21 - 178
1,2,3,4,7,8-HxCDF	ND /	0.0283		13C-1,2,3,4,7,8-HxCDF	89.5	26 - 152
1,2,3,6,7,8-HxCDF	ND	0.0365		13C-1,2,3,6,7,8-HxCDF	67.5	26 - 123
2,3,4,6,7,8-HxCDF	ND/	0.0177		13C-2,3,4,6,7,8-HxCDF	72.0	28 - 136
1,2,3,7,8,9-HxCDF	MO	0.0239		13C-1,2,3,7,8,9-HxCDF	76.4	29 - 147
1,2,3,4,6,7,8-HpCL	eren de esta de la companya de la c	0.116		13C-1,2,3,4,6,7,8-HpCDF	61.0	28 - 143
1,2,3,4,7,8,9-H6CL	DF ND	0.0410		13C-1,2,3,4,7,8,9-HpCDF	73.4	26 - 138
OCDE/	ND	0.156		13C-OCDF	61.1	17 - 157
<u> </u>				CRS 37CI-2,3,7,8-TCDD	91.6	35 - 197
TOTALS						
Total TCDD	ND	0.149				
Total PeCDD						
Total HxCDD	ND	0.289		60 110		
Total HpCDD	ND	0.424				
Total TCDF	ND	—0.103		1 10/4		
Total PeCDF	ND	0.275	a transfer and a second and a second			
Total HxCDF	ND	0.0391				
Total HpCDF	antinoni in internativa antinoni in internativa in internativa internativa internativa internativa internativa		Notice and the second s			



Title: Procedure for Verification of Total Tetra Chlorinated Dibenzo Dioxin

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR101 Validator: T. Solomon Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Is the integrated ion current of each non 2,3,7,8-substituted compound identified as present in the sample at least 2.5 times background noise?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

If any errors are found, contact the laboratory project manager to request explanation/resubmittals.

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR101

1st TCDD	25.91	An1	2.58E+02	6.49E+02	Concentration	0.137
4		An2	3.91E+02		pg/L	
Ion Ratio	0.66	Ai1	4.50E+05	1.04E+06	Reported	0.137
		Ai2	5.86E+05		pg/L	
-		Vx	10.200	L		
		RRF	0.898	(mean RRF)		
		Qi	2000	(pg)		

Sample ID	PR101CFRB	LQ	Retention Time	PR101TLC	LQ	PR101CFFB	LQ	PR101WWFB	LQ
Concentration	0.13719		25:91	0		0		0	

Calculated Total	0.137	0	0	0
Reported Total	0.137	ND	ND I	ND

Title: Procedure for Verification of Total Tetra Chlorinated Dibenzo Dioxin

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR102 Validator: T. Solomon Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Is the integrated ion current of each non 2,3,7,8-substituted compound identified as present in the sample at least 2.5 times background noise?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

If any errors are found, contact the laboratory project manager to request explanation/resubmittals.

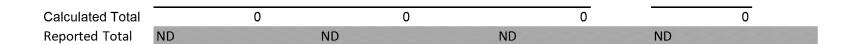
^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

1st TCDD		An1	0.00E+00	0.00E+00	Concentration	0.000
4		An2	0.00E+00			pg/L
Ion Ratio	0.00	Ai1	0.00E+00	0.00E+00	Reported	ND
		Ai2	0.00E+00			pg/L
		Vx	9.770	L		
		RRF	1.040	(mean RRF)		
		Qi	2000	(pg)		

Sample ID	PR101LPEB (primary)	LQ	PR101LPEB (secondary)	LQ	PR101LDEB (primary)	LQ	PR101LDEB (secondary)	LQ
Concentration	0		0		0		0	



Title: Procedure for Verification of Total Tetra Chlorinated Dibenzo Dioxin

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR105 Validator: T. Solomon Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Is the integrated ion current of each non 2,3,7,8-substituted compound identified as present in the sample at least 2.5 times background noise?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

If any errors are found, contact the laboratory project manager to request explanation/resubmittals.

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR105

1st TCDD	24:30	An1	5.26E+03	1.33E+04 Concentration 0.239
4		An2	8.03E+03	pg/L
Ion Ratio	0.65	Ai1	5.98E+06	1.29E+07 Reported 0.240
		Ai2	6.93E+06	pg/L
		Vx	7.230	L
		RRF	1.190	(mean RRF)
		Qi	2000	(pg)

Sample ID	PR1CSOCLYWW-01A	LQ	Retention Time	PR1WWDUP-01/LQ	Retention Time
Concentration	0.43979	EMPC	24:12	0.21595	22:26
	0.24003	i	24:30	0.1407	22:28
	0.24284	EMPC	27:02	0	2,3,7,8-TCDD
	0)	2,3,7,8-TCDD		

Calculated Total	0.923	0.357
Reported Total	0.923 EMPC	0.357

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR106 Validator: T. Solomon Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

1st TCDD	24:15	An1	1.37E+05	3.09E+05 Concentration	4.34
4	5	An2	1.72E+05	ž	pg/g
Ion Ratio	0.80	Ai1	1.04E+07	2.35E+07 Reported	4.36
		Ai2	1.31E+07		pg/g
		Vx	5.090	g	
		RRF	1.19	(mean RRF)	
		Qi	2000	(pg)	

Sample ID	PR1CSOCLYHP-01A LQ	Retention Time	PR1HPDUP-(LQ Retention	on Time
Concentration	4.3604	24:14	4.8243	24:14	
	2.2034	24:33	2.1805	24:32	
	0.56675	24:55	0.53726	24:55	
	0.19367 EMPC	25:34	0.22122	25:33	
	0.9238 EMPC	25:45	1.2751	25:46	
	1.6989	25:55	1.8622	25:55	
	0.68066	26:05	0.60955	26:05	
	0.20107	26:18	0.19684 EMPC	26:17	
	0.61858	26:25	0.68274	26:26	
	0.53607	26:44	0.64745	26:44	
	0.17007	26:51	0.15463	26:51	
	2.3179 EMPC	27:03	2.1357	27:04	
	0.15937	27:10	9.1517	27:17 (2	,3,7,8-TCDD)
	2.3564	27:17 (2,3,7,8-TCDD	0.78007	27:32	
	0.63343	27:33	0.15468	27:39	
	0.11811 EMPC	27:38	0.27874	28:03	
	0.28658	28:04			
Calculated Total	18.0		25.7		
Reported Total	18.0 EMPC		25.7 EMPC		

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR107 Validator: T. Solomon Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR107

1st TCDD	21.86	An1	2.76E+02	6.69E+02 Concentration 0.207
4		An2	3.93E+02	pg/L
Ion Ratio	0.70	Ai1	2.98E+05	6.87E+05 Reported 0.207
		Ai2	3.89E+05	pg/L
		Vx	9.880	L
		RRF	0.952	(mean RRF)
		Qi	2000	(pg)

Sample ID	PR1CSOCLYHD-01A	LQ	Retention Time	PR1HDDUP-01A	LQ	Retention Time
Concentration	0.067	EMPC	25.91	0.20687		21.86
				1.8396		25.66

Calculated Total	0.067	2.05
Reported Total	0.067 EMPC	2.05

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR109 Validator: T. Solomon Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

1st TCDD	21.75	An1	4.54E+02	1.01E+03 Concentration 6.10
4		An2	5.59E+02	pg/g
Ion Ratio	0.81	Ai1	4.14E+05	9.41E+05 Reported 6.08
		Ai2	5.27E+05	pg/g
		Vx	0.371	g
		RRF	0.952	(mean RRF)
		Qi	2000	(pg)

Sample ID	PR1CSOCLYLP-01A	LQ	Retention Time	PR1LPDUP-01A	LQ	Retention Time
Concentration	6.076718	3	21:75	3.747	4	21:73
	3.2819503	}	22:13	1.890	4	22:15
	9.23389)	25:59	1.000	2 EMPC	24:09
				3.081	7	25:60
					(2378 TCDD "U"	
					flagged - blank	
				1.742	5 contamination)	25:83
					,	
Calculated Total	18.6	3		10.4	_ 6	
EMPC TOTAL				11.4	6 EMPC	
Calculated total						
minus blank						
contamination				8.7	2	
					_	
EMPC Calculated						
total minus blank						
contamination	•			9.7	2 EMPC	
Reported Total	18.6	ž.		:	5 EMPC	
Neported rotar	10,0	,		11.	LIVIFC	

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR110 Validator: T. Solomon Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR110

1st TCDD		An1	0.00E+00	0.00E+00 C	Concentration	0.00
4		An2	0.00E+00		pg/L	
Ion Ratio	0.00	Ai1	4.37E+05	1.01E+06	Reported	0.00
		Ai2	5.68E+05		pg/L	
		Vx	9.787] L		
		RRF	0.952	(mean RRF)		
		Qi	1	(pg)		

Sample ID PR1CSOCLYLD-01A PR1LDDUP-01A LQ

Concentration 0 2,3,7,8-TCDD 0 2,3,7,8-TCDD

Calculated Total	0.0000	0
Reported Total	ND N	D

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR125 Validator: T. Solomon Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR125

1st TCDD		An1	3.66E+03	0.00E+00	Concentration 0.069
4	And the second section of the second	An2	4.08E+03		pg/L
Ion Ratio	0.00	Ai1	8.46E+06	0.00E+00	Reported ND
		Ai2	1.05E+07		pg/L
		Vx	10.014	L	
		RRF	1.190	(mean RRF)	
		Qi	2000	(pg)	

Sample ID	PR103WWFB	LQ	Retention PR108CFFB LQ	Retention Time	PR107CFRB	LQ	Retention Time
Concentration					0.06428	B EMPC	23:53
					0.1033	B EMPC	TCDD

Calculated Total	0.000	0	0.168
Reported Total	ND	ND	0.168 EMPC

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR126*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

1st TCDD		An1	0.00E+00	0.00E+00 Concentration	0.000
4		An2	0.00E+00		pg/L
Ion Ratio	0.00	Ai1	0.00E+00	0.00E+00 Reporte	d ND
		Ai2	0.00E+00		pg/L
		Vx	10.200] L	
		RRF	1.040	(mean RRF)	
		Qi	2000	(pg)	

	PR103LPEB		PR103LPEB			PR103LDEB		PR103LDEB		
	(primary)	LQ	Retention Time (secondary)	LQ	Retention Time	(primary)	LQ	Retention Time (secondary)	LQ	Retention Time
Sample ID	pg/sample		pg/sample			pg/L		pg/L		
Concentration										

Calculated Tota 0.000	0		0
Reported Total ND	ND	ND	ND

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR127*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody records, etc). This procedure alone is inadequate for data verification.

records, etc). This procedure alone is inadequate for data verification

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR127

1st TCDD	21.66	An1	1.26E+02	2.70E+02	Concentration 0.0700
4	and the second second	An2	1.44E+02		pg/L
Ion Ratio	0.88	Ai1	3.51E+05	8.07E+05	Reported 0.0700
		Ai2	4.56E+05		pg/L
		Vx	10.039]L	
		RRF	0.952	(mean RRF)	
		Qi	2000	(pg)	

Sample IDPR108CFRBLQRetention TimeConcentration0.06998721:66

0.12741 EMPC TCDD

Calculated Total	0.197
Reported Total	0.1970 EMPC

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR134
Validator: T. Solomon
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR134

1st TCDD		An1	0.00E+00	0.00E+00 Concentration 0.00
4		An2	0.00E+00	pg/L
Ion Ratio	0.00	Ai1	3.72E+06	8.34E+06 Reported 0.00
		Ai2	4.62E+06	pg/L
		Vx	9.730	L
		RRF	1.040	(mean RRF)
		Qi	1	(pg)

Sample ID PR1CSOCLYWW-02B PR1WWDUP-02B

Concentration 0 2,3,7,8-TCDD 0 2,3,7,8-TCDD

Calculated Total	0.000	0
Reported Total	ND ND	

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR135*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

1st TCDD	21.68	An1	2.67E+03	5.90E+03	Concentration 4.23
4	Appendix	An2	3.23E+03		pg/g
Ion Ratio	0.83	Ai1	5.41E+05	1.23E+06	Reported 4.24
		Ai2	6.91E+05		pg/g
		Vx	5.002	l g	
		RRF	0.905	(mean RRF)	
		Qi	4000	(pg)	

Sample ID	PR1CSOCLYHP-02B LQ	Retention Time	PR1HPDUP-02I LQ	Retention Time
Concentration	4.2365	21:68	4.1949	21:66
	2.3606	22:11	0.38995	22:61
	0.58848	22:59	0.85656	23:79
	1.166	23:80	1.1727	23:97
	1.3288	24:00	0.4932	24:22
	0.55826	24:20	1.3767	25:44
	0.57161	24:64	0.19818	25:55
	1.3774	25:39	0 U	TCDD
	0 U	TCDD	0.5449	25:01
	0.58814	26:03		

1.9104 EMPC 0.469 EMPC 0.54062 EMPC

Calculated Total 12.78
EMPC TOTAL
Reported Total 14.0

Note:1.24 pg/g TCDD result was qualified "U" which accounts for the difference in the reported vs calculated

9.23 12.15 EMPC 13.8 EMPC

Note: 1.60 pg/g TCDD result was qualified "U" which accounts for the difference in the reported vs calculated

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR137*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR137

1st TCDD	25.78	An1	1.93E+03	4.50E+03	Concentration 1.42
4	e e e e e e e e e e e e e e e e e e e	An2	2.57E+03		pg/L
Ion Ratio	0.75	Ai1	3.04E+04	6.96E+04	Reported 1.42
		Ai2	3.92E+04		pg/L
		Vx	9.588	L	
		RRF	0.952	(mean RRF)	
		Qi	200	(pg)	

Sample ID	PR109CFRB	LQ	Retention Time	PR101HLLC	LQ	Retention Time
Concentration	0.20334	EMPC				
	1.4178		TCDD			

Calculated Total	1.62	0
Reported Total	1.62 EMPC	ND

Time

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR138*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR138

1st TCDD	23.37	An1	9.25E+03	2.04E+04 Concentration	0.28
4		An2	1.11E+04		pg/L
Ion Ratio	0.83	Ai1	6.68E+06	1.47E+07 Reported	0.28
		Ai2	8.04E+06		pg/L
		Vx	9.660	L	
		RRF	1.040	(mean RRF)	
		Qi	2000	(pg)	

Sample ID	PR1CSOCLYHD-02B	LQ	Retention Time	PR1HDDUP-02B L	_Q	Retention Time
Concentration	0.2746	34	23:37	0.136 E	EMPC	23:38

Calculated Tota	0.275
Reported Total	0.275

0.136	
0.136	EMPO

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR140*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR140

1st TCDD		An1	0.00⋿+00	0.00E+00	Concentration 0.00
4		An2	0.00E+00		pg/g
Ion Ratio	0.00	Ai1	4.60E+06	1.03E+07	Reported 0.00
		Ai2	5.71E+06		pg/g
		Vx	0.080	g	
		RRF	1.040	(mean RRF)	
		Qi	2000	(pg)	

Sample ID PR1CSOCLYLP-02B LQ RETENTION TIME PR1LPDUP-02B LQ RETENTION TIME

Concentration

Calculated Total	0.000
Reported Total	ND

		0
ND		

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR141*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR141

1st TCDD	₽ torre	An1	0.00E+00	0.00E+00	Concentration 0.00
4		An2	0.00E+00		pg/L
Ion Ratio	0.00	Ai1	4.64E+06	1.05E+07	Reported 0.00
		Ai2	5.86E+06		pg/L
		Vx	9.930] L	
		RRF	1.040	(mean RRF)	
		Qi	2000	(pg)	

Sample ID PR1CSOCLYLD-02B LQ Retention Time PR1LDDUP-02B LQ Retention Time Concentration

Calculated Total 0.000
Reported Total ND

ND 0

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR142*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR142

1st TCDD	27:02	An1	1.53E+04	3.37E+04	Concentration	0.390
4		An2	1.84E+04		pg/L	
Ion Ratio	0.83	Ai1	7.52E+06	1.70E+07	Reported	0.387
		Ai2	9.48E+06		pg/L	
		Vx	9.770]L		
		RRF	1.040	(mean RRF)		
		Qi	2000	(pg)		

Sample ID PR110CFRB LQ Retention Time PR104WWFB LQ Retention Time Concentral 0.38745 TCDD Retention Time PR109CFFLQ Retention Time

Calculated	0.387
Reported T	0.387

			_
			(
NIC	,		
NU			

0 ND

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR145*

Validator: Elise Francken
Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR145

1st TCDD	23.18	An1	1.77E+04	4.29E+04 Concentration 0.299
4		An2	2.52E+04	pg/L
Ion Ratio	0.70	Ai1	1.25E+07	2.85E+07 Reported 0.297
		Ai2	1.60E+07	pg/L
		Vx	9.780]L
		RRF	1.030	(mean RRF)
		Qi	2000	(pg)

Sample ID	PR1CSOCLYWW-01C LQ	Retention Time	PR1WWDUP-01C	LQ	Retention Time
Concentration	0.29707	23:18	0.13803	EMPC	23:18
	0.13272 EMPC	23:42	0.081034	EMPC	26:49:00
	0.095844	25:25:00	0.053028	EMPC	TCDD
	0.1157 EMPC	26:46:00			
	0.084793 EMPC	TCDD			

Calculated Total	0.726 W EMPC	0.272
	0.393 W/O EMPC	
Reported Total	0.726 EMPC	0.272 EMPC

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR146*

Validator: Elise Francken
Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR146

1st TCDD	23:21	An1	1.85E+05	4.23E+05 Concentrat 5.75
4		An2	2.38E+05	pg/g
Ion Ratio	0.78	Ai1	1.27E+07	2.86E+07 Reported 5.75
		Ai2	1.59E+07	pg/g
		Vx	9.990	g
		RRF	1.030	(mean RRF)
		Qi	4000	(pg)

Sample ID	PR1CSOCLYHP-01C	LQ	Retention Time	PR1HPDUP-01C	LQ	Retention Time
Concentration	5.7466	;	23:21	4.4924		23:22
	3.5062		23:45	2.5546		23:45
				0.53646		24:14:00
				0.26763		25:03:00
	1.3511		25:17:00	1.1498		25:18:00
	1.4371		25.28	1.2168		25:29:00
	0.60632	!	25:39:00	0.54425		25:41:00
	0.78321		26:04:00	0.19202		25:55:00
				0.70112		26:06:00
	0.21749	1	26:26:00	1.0379		26:49:00
	1.4701		26:47:00	0.77645		27:23:00
	0.23843	i	26:56:00	0.21218		27:31:00
	C	U	TCDD	0.36962		27:59:00
	0.77857	•	27:22:00			
	0.40893	į	27:57:00			
	0.48465	EMPC	24:13:00	0.46813	EMPC	26:26:00
	0.21143	EMPC	25:02:00	0.16929	EMPC	26:56:00
	0.53643	EMPC	26:26:00	1.2801	EMPC	TCDD
Calculated Total	al 16.5			14.1		
EMPC TOTAL	17.8	EMPC		16.0	EMPC	
Reported Total	19.4	EMPC		16.0	EMPC	

Note:

2,3,7,8-TCDD was found in the sample @ 1.60pg/g and Qualified "U" . Form 1 for total needed corrected to account for this.

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR147*

Validator: Elise Francken
Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR147

1st TCDD	Samuel	An1	0.00E+00	0.00E+00	Concentration	0.00
4		An2	0.00E+00		pg/L	
Ion Ratio	0.00	Ai1	4.60E+06	1.03E+07	Reported	0.00
		Ai2	5.71E+06		pg/L	
		Vx	0.080	g		
		RRF	1.040	(mean RRF)		
		Qi	2000	(pg)		

Sample ID	PR1CSOCLYHD-01C LQ	Retention Time	PR1HDDUP-01C LQ	Retention Time	
Concentration	0	TCDD	0.06836 EMPC		23:20
			0	TCDD	

Calculated Total	0.000	0
Reported Total	ND ND	ľ

C	0.06	836	W	EMF	C
	0.0	684	E١	/IPC	

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR149*

Validator: Elise Francken
Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR149

1st TCDD	23.19	An1	1.30E+04	2.79E+04 Concentration 17.52
4		An2	1.49E+04	pg/g
Ion Ratio	0.87	Ai1	1.77E+07	4.00E+07 Reported 17.48
		Ai2	2.23E+07	pg/g
		Vx	0.077	g
		RRF	1.030	(mean RRF)
		Qi	2000	(pg)

Sample ID PR1CSOCLYLE	P-01C LQ	Retention Time	PR1LPDUF LQ	RT	PR105LPEB	LQ	RT
Concentrat	17.486	23:20	18.698	23:	19		
	8.9406 EMPC	2,3,7,8-TCDD	12.184	23:4	14		
			11.273	25:27:	00		
			10.745	26:47:	00		
			15.965 EMPC	2,3,7,8-TCDI)		

Calculated	26.4 W EMPC	68.9 W EMPC	0
	17.486 W/O EMPC	52.9 W/O EMPC	
Reported T	26.4 EMPC	68.9 EMPC	ND

Results - Rev. 2

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SDG: *PR150*

Validator: Elise Francken
Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(RRF^c)(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^a Combined area of M1 and M2 ions

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

PR150

1st TCDD		An1	0.00E+00	0.00E+00 C	Concentration 0.000
4		An2	0.00E+00		pg/L
Ion Ratio	0.00	Ai1	0.00E+00	0.00E+00	Reported ND
		Ai2	0.00E+00		pg/L
		Vx	9.770	<u> </u> L	
		RRF	1.040	(mean RRF)	
		Qi	2000	(pg)	

Sample ID	PR1CSOCLYLD-01C LQ	Rention Time PR1LDDUP-0	1C LQ	Rention Time PR105LDEB LQ	Rention Time
Concentration	0	TCDD	0	TCDD	

Calculated Total 0.000
Reported Total ND

ND 0

ND